

**Final Environmental Assessment
and
Finding of No Significant Impact and Decision
for
Alternative Strategies
for the Management of Damage Caused by Migratory Birds
in the State of Washington**

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Prepared by:

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In Consultation with:

United States Department of Interior
Fish and Wildlife Service (USFWS),
Washington Department of Fish and Wildlife (WDFW)
Washington State Department of Agriculture (WSDA)
and Federal Aviation Administration (FAA)

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LIST OF ACRONYMS

AC	Alpha chloralose
ADC	Animal Damage Control (former name of Wildlife Services program)
APHIS	Animal and Plant Health Inspection Service (USDA agency)
AVMA	American Veterinary Medical Association
BBS	Breeding Bird Survey
CBC	Christmas Bird Count
CFR	Code of Federal Regulations
EA	Environmental Assessment
EIS	Environmental Impact Statement
ESA	Endangered Species Act
et al.	et alia (and others)
FAA	Federal Aviation Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FONSI	Finding Of No Significant Impact
FY	Fiscal Year (October 1 through September 31)
INAD	Investigational New Animal Drug
IWDM	Integrated Wildlife Damage Management
MBTA	Migratory Bird Treaty Act
MIS	Management Information System
NASS	National Agricultural Statistics Service
NEPA	National Environmental Policy Act
NWRC	National Wildlife Research Center
OSHA	Occupational Safety and Health Administration
RCW	Revised Code of Washington
USC	United States Code
USDA	United States Department of Agriculture
USDI	United States Department of Interior
USFWS	United States Fish and Wildlife Service (USDI agency)
WSDA	Washington State Department of Agriculture
WDFW	Washington Department of Fish and Wildlife
WS	Wildlife Services (USDA-APHIS program)

1.0 PURPOSE AND NEED FOR ACTION

The purpose of this Environmental Assessment (EA) is to evaluate the issues and alternatives for the management of migratory bird damage and to develop future management options for the State of Washington.

1.1 NEPA Compliance

This EA has been prepared in compliance with the National Environmental Policy Act (NEPA) of 1969 [42 United States Code (USC) Section 4231 et seq., as implemented by the Council on Environmental Quality (CEQ) Regulations, 40 Code of Federal Regulations (CFR) Section 1500 - 1508]. According to APHIS procedures implementing NEPA, individual wildlife damage management actions are categorically excluded from the requirement to prepare an EA [7 CFR 372.5 (c), 60 Fed Reg. 6,000 - 6,003, 1995]. However, to facilitate planning, interagency consultation, comply with Animal and Plant Health Inspection Service (APHIS) NEPA procedures, and involve the public in resolving migratory bird damage in Washington, WS has elected to prepare this EA.

An EA is a concise public document for which a Federal agency is responsible that serves to:

- (1) Briefly provide sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).
- (2) Aid an agency's compliance with the NEPA when no EIS is necessary.
- (3) Facilitate preparation of an EIS when one is necessary.
- (4) Provide brief discussions of the need for the proposal, of alternatives as required by Section 102(2)(E), of the environmental impacts of the proposed action and alternatives, and a listing of agencies and persons consulted (40 CFR 1508.9).

WS, formerly known as Animal Damage Control (ADC), has issued a Final EIS on the national APHIS-WS program (USDA 1997, revised) to which this EA is tiered. In addition, pertinent and current information available in the Final EIS has been incorporated by reference into this EA.

1.2 Introduction

USDA-APHIS-Wildlife Services (WS) is authorized by Congress to manage a program to reduce human/wildlife conflicts. WS's mission is to "provide leadership in wildlife damage management in the protection of America's agricultural, industrial and natural resources, and to safeguard public health and safety". This is accomplished through:

- A) training of wildlife damage management professionals;
- B) development and improvement of strategies to reduce economic losses and threats to humans from wildlife;
- C) collection, evaluation, and dissemination of management information;
- D) participating in cooperative wildlife damage management programs;
- E) informing and educating the public on how to reduce wildlife damage and;
- F) providing data and a source for limited-use management materials and equipment, including pesticides (USDA 1989).

WS is a cooperatively funded and service oriented program. Before any operational wildlife damage management is conducted, *Agreements for Control* or *WS Work Plans* must be completed by WS and the land owner/administrator. WS cooperates with private property owners and managers and with appropriate land and wildlife management agencies, as requested, with the goal of effectively and efficiently resolving wildlife damage problems with all applicable federal and state permits.

This EA evaluates ways by which this responsibility can be carried out to resolve conflicts with migratory birds that include, but are not necessarily limited to: cormorants (*Phalacrocorax* species); herons (*Ardeidae* family); waterfowl (*Anatidae* family); hawks and falcons (*Accipitridae* and *Falconidae* families); gulls [California (*Larus californicus*), glaucous-winged (*L. glaucescens*), herring (*L. argentatus*), and ring-billed (*L. delawarensis*)]; owls [great horned (*Bubo virginianus*) and barn (*Tyto alba*)]; northern flickers (*Colaptes auratus*); swallows (*Hirundinidae* family); American robins (*Turdus migratorius*); and house finches (*Carpodacus mexicanus*). These migratory species and species groups have consistently posed the most damage and required the greatest attention by WS in Washington over the past 5 years (FY 1996-2000).

1.3 Public Involvement

Solicitation for Input, Information, and Issues:

WS used the information gathered from agency personnel, the United States Fish & Wildlife Service (USFWS), Washington Department of Fish & Wildlife (WDFW), National Agricultural Statistics Service (NASS), Washington State Department of Agriculture (WSDA), Federal Aviation Administration (FAA) and the public in preparing this document. Public input was obtained through written comments provided in response to a public involvement letter. Three hundred and five public involvement letters were sent to state, federal, county, and municipal agencies, businesses, animal welfare and animal rights organizations, and individuals. The public involvement letter invited information concerning the issues and alternatives involving bird damage caused by the species addressed in this EA. Two letters were received in response to the invitations. The issues and alternatives identified in this process have been considered in this document and all individuals expressing interest in this process received a copy of the pre-decisional EA.

Agency Review:

Following the public involvement process, the preliminary EA was presented to the consulting agencies (USFWS, WDFW, WSDA, and FAA) for interagency review.

Public notice of Availability:

Legal notices of availability will be placed in; *The Seattle Times*, *The Wenatchee World*, *The Tri-City Herald*, *The Columbian* and *The Spokesman Review* to solicit input on the pre-decisional EA.

1.4 Purpose and Scope

The purpose of the proposed management activities is to reduce or alleviate damage to agriculture, property, natural resources, and human health and safety caused by migratory birds.

This EA examines potential environmental impacts of the proposed WS program and alternatives, as it responds to requests from individuals, businesses, associations, and government agencies to alleviate or reduce actual and potential damage in the state of Washington. The State of Washington was selected as the area of site specific analysis for this document. This determination was based upon the authorities of the various management agencies (Appendix 1), the species involved and their legal status (page 2), and the routine use of the site-specific WS decision model (Appendix 3).

This EA will remain valid until WS and other appropriate agencies determine that new needs for action, changed conditions, or new alternatives having different environmental effects must be analyzed. At that time, this analysis and document may be revised or amended pursuant to NEPA. WS supervisors (wildlife biologists) monitor the Management Information System (MIS) reports bi-weekly and are constantly aware of ongoing field operations. Review of this EA will be conducted annually to ensure that the analysis is still sufficient.

Related environmental analysis include:

- USDA-APHIS-WS, EA and FONSI for “Bird Damage Management (As associated with ‘depredating’ nonnative (invasive) birds, feral domestic waterfowl, nonmigratory birds, and those migratory birds as provided for in 50 CFR Regulations in the State of Washington”, addressing migratory birds with Federal depredation orders (USDA 2000).
- USDA-APHIS-WS, EA and FONSI for “Management of Conflicts Associated with Non-migratory (resident) Canada Geese in the Puget Sound Area”, addressing resident Canada goose (*Branta canadensis moffitti*) damage management activities in the State of Washington (USDA 1999).
- USDA-APHIS-WS, EA and FONSI for “Predator Damage Management in Washington” addressing damage management of ravens (*Corvus corax*) in the State of Washington (USDA 1997).

However, the species and issues discussed in these documents are outside the scope of the EA and will only be included in Cumulative Impacts (section 3.6) analysis.

1.5 Authority and Compliance

Wildlife Services:

WS activities are conducted at the request of and in cooperation with other Federal, State, and local agencies; private organizations; and individuals. WS is directed by law to protect American agriculture and other resources from damage associated with wildlife. “Wildlife damage management” is defined as the alleviation of damage or other problems caused by, or related to, the presence of wildlife. It is an integral component of wildlife management (Leopold 1933, The Wildlife Society 1990, Berryman 1991). The primary statutory authority for the WS program is the Animal Damage Control Act of March 2, 1931, as amended (7 U.S.C. 426-426c; 46 Stat. 1468). In 1988, Congress strengthened the legislative authority of WS with the Rural Development, Agriculture, and Related Agencies Appropriations Act.

Consulting Agencies:

United States Fish and Wildlife Service (USFWS):

The Service’s authority for action is based on the Migratory Bird Treaty Act (MBTA) of 1918 (as amended) and the Endangered Species Act (ESA).

Washington Department of Fish and Wildlife (WDFW):

The Department’s authority for managing wildlife in the state of Washington is based on Washington State Chapter 77.12 Revised Code of Washington (RCW).

Washington State Department of Agriculture, Pesticide Management Division (WSDA):

The Division’s authority for managing pesticides in the state of Washington is based on Washington State Chapter 15.58 RCW.

Federal Aviation Administration (FAA):

The FAA’s authority for managing wildlife hazards at airports is based on 14 Code of Federal Regulations (CFR) Part 139.

See Appendix 1 for further discussion of agency authorities.

1.6 Compliance with statutes

Several federal laws regulate WS wildlife damage management. WS complies with these laws and regulations, consults with, reports to, and cooperates with other agencies as appropriate.

National Environmental Policy Act. Environmental documents pursuant to NEPA must be completed before a NEPA decision can be implemented. WS also coordinates specific projects and programs with other agencies. The purpose of these contacts is to coordinate any wildlife damage management that may affect resources managed by these agencies or affect other areas of mutual concern. Typically, federal agencies that fund WS assistance to protect resources are responsible for NEPA compliance. For example, the USFWS would be responsible for NEPA compliance regarding efforts conducted by WS at the request of, and funded by, the USFWS for protection of endangered species.

Endangered Species Act (ESA). It is federal policy, under the ESA, that all federal agencies shall seek to conserve endangered and threatened species and shall utilize their authorities in furtherance of the purposes of the Act (Sec. 2(c)). WS conducts Section 7 consultations with the USFWS to use the expertise of the USFWS to ensure that “any action authorized, funded or carried out by such an agency. . . is not likely to jeopardize the continued existence of any endangered or threatened species. . . Each agency shall use the best scientific and commercial data available” (Sec. 7(a)(2)).

Migratory Bird Treaty Act (MBTA). The MBTA provides the USFWS regulatory authority to protect species of birds that migrate outside the United States . The MBTA prohibits the take of protected species (defined under 50 CFR §10.13) except as permitted by the USFWS under the regulatory authorities of 50 CFR Parts 13, 20, and 21. WS obtains MBTA permits covering management activities that involve the taking of species for which such permits are required in accordance with the MBTA and USFWS regulations, or operates as a named agent on MBTA permits obtained by cooperators.

Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). FIFRA requires the registration, classification, and regulation of all pesticides used in the United States. The Environmental Protection Agency (EPA) is responsible for implementing and enforcing FIFRA. All pesticides used by the WS program in Washington are registered with and regulated by the EPA and Washington State Department of Agriculture, and used by WS in compliance with labeling procedures and requirements.

Investigational New Animal Drug (INAD). The Food and Drug Administration (FDA) grants permission to use INAD (21 CFR, Part 511). Alpha chloralose is classified as an INAD (21 CFR 510) and cannot be purchased from any source except WS. The FDA authorization allows WS to use alpha chloralose to capture geese, ducks, coots, and pigeons. FDA acceptance of additional data will allow WS to consider requesting an expansion for the use of alpha chloralose with other species.

Executive Order 12898 Environmental Justice (EO-12898). EO-12898 requires Federal agencies to make Environmental Justice part of their mission, and to identify and address disproportionately high and adverse human health and environmental effects of Federal programs, policies and activities on minority and low-income persons or populations.

Executive Order 13186 Migratory Birds (EO-13186). EO-13186 directs Federal agencies to incorporate bird conservation considerations into agency planning, including NEPA analyses; reporting annually on the level of take of migratory birds; and generally promoting the conservation of migratory birds without compromising the agency mission.

1.7 Need for Action

The Washington Ornithological Society (1999-2001) lists over 442 bird species that inhabit Washington on a seasonal or year-round basis. Most of these birds are migratory and pass periodically from one region or climate to another for feeding or breeding. Migratory birds are ecologically, socially, and economically valuable, but on occasion cause substantial damage to agriculture, property, natural resources and threats to public health and safety. When damage occurs, WS is often requested by individuals, businesses, municipalities, counties, and state and federal agencies to assist in reducing the damage. The USDA-APHIS-ADC Programmatic EIS (1997, revised) summarized the relationship in American culture of wildlife values and wildlife damage in this way:

"Wildlife has either positive or negative values, depending on varying human perspectives and circumstances . . . Wildlife generally is regarded as providing economic, recreational and aesthetic benefits . . . , and the mere knowledge that wildlife exists is a positive benefit to many people. However, . . . the activities of some wildlife may result in economic losses to agriculture and damage to property . . . Sensitivity to varying perspectives and values is required to manage the balance between human and wildlife needs. In addressing conflicts, wildlife managers must consider not only the needs of those directly affected by wildlife damage but a range of environmental, sociocultural, and economic considerations as well."

Populations of the California gull (*L. californicus*), glaucous-winged gull (*Larus glaucescens*), herring gull (*L. argentatus*), and ring-billed gull (*L. delawarensis*) in North America have risen dramatically in the last few decades. In Washington and throughout the country, this has been attributed to the expansion of cities and landfills, the creation of dredge spoil islands and reservoirs, the advent of large scale agriculture, and protection granted under the Migratory Bird Treaty Act (Conover 1983; Ryder 1993). Gulls are the primary species of wildlife damage management concern in Washington, causing 39% of the reported dollar damage attributed to migratory species (USDA 1995-2000).

Total migratory bird damage *reported and verified* by WS in WA for fiscal year (FY) 1996-2000 was \$1,881,672. This damage included \$1,159,596 to agriculture, \$670,376 to property, \$400 to natural resources, and \$51,300 to human health and safety (USDA 1995-2000). The *actual* amount of damage incurred is probably much higher, because WS receives reports from only a fraction of the people experiencing wildlife damage.

Human Health Concerns:

Disease - Migratory birds and other wildlife are host to many naturally occurring diseases called zoonotic diseases. At least 24 of these are transmissible to humans and pets, but are not passed from human to human. These include: the bacterial diseases avian cholera, tuberculosis, salmonellosis, botulism, campylobacter enteritis, and oronothosis; fungal diseases aspergillosis, or brooder pneumonia, histoplasmosis, and candidiasis; and viral diseases such as Newcastle disease and avian influenza (USGS 1999; USFWS 1987).

Between 1983-1997, Washington led the U.S. with 9 bird-related outbreaks of salmonellosis, a common, but seldom fatal disease which can be found in many species of shorebirds, songbirds, herons, waterfowl, and raptors (USGS 1999; USFWS 1987). Salmonellosis is spread through direct contact with infected material, usually food and water contaminated by fecal discharge. Food poisoning characterized by acute intestinal pain and diarrhea is the most common form of human infection.

Ornithosis varies in severity but can be fatal. In the United States, herons, waterfowl, gulls, and doves are reported carriers (USGS 1999). The disease is spread through direct contact with infected birds and inhalation of infected airborne fecal material. Serious outbreaks have occurred among poultry workers, and on a separate occasion, wildlife biologists who were thought to have become infected from handling snow geese, great egrets,

snowy egrets, white-winged doves, and ducks (USFWS 1987). In Washington, two WS technicians working with birds were sickened and diagnosed with ornithosis, and in a subsequent year, 20% of the Washington WS technicians tested showed exposure to ornithosis.

The USDA-National Food and Agriculture Council (NFAC) has taken precautions to prevent the spread of Foot-and-Mouth Disease (FMD) in the United States. FMD is difficult to control and has occurred in 60% of the world (USDA-NFAC, 2001). Humans may spread the disease by tracking contaminated feces from place-to-place on their footwear, however, observations of bird-use at feedlots in Washington suggests that the migration of birds from feedlot to feedlot may contribute to the spread of disease (USDA 2001).

Accumulation of droppings - Gulls commonly nest on rooftops, equipment, piers and rocky outcroppings (Belant 1997, et al. 1993; Butterfield et al. 1983; Monaghan & Coulson 1977; Conover 1983; Winkler 1996; Pierotti & Good 1994; Ryder 1993;). The Occupational Safety and Health Administration (OSHA) considers bird droppings in the work place hazardous [OSHA sanitation standard 29CFR 1910.141(a)(5)]. In 2000, the Department of Labor and Industries fined the Washington Department of Transportation Ferry System \$2,500 for health hazards created by pigeon and gull droppings on a new passenger skyway (Seattle Post-Intelligencer 2000). In addition to health concerns, feces may also pose slipping hazards on bridges, catwalks, hand rails, docks, and other structures. Between FY 1996-2000, WS recorded droppings from gulls, cormorants, ducks and swallows causing more than \$228,590 in damage to equipment, structures, landscaping, and human health and safety concerns (USDA 1995-2000).

Human Safety Concerns:

WS receives several requests annually for assistance regarding wildlife hazard management at airports in Washington. These requests are considered serious because of the potential for loss of human life and because damage to aircraft can be extremely expensive.

Nationally, bird strikes cause an estimated 7 fatalities and \$245 million damage to civilian and military aircraft each year (Conover et al. 1995). In 1995, a military jet taking off at Elmendorf Air Force Base in Alaska crashed after striking a flock of Canada geese. All 24 crew members were killed and the \$190 million aircraft was destroyed (Dolbeer 1997). The collision of aircraft with birds is a serious concern at airports throughout Washington and may involve any species of migratory bird, including gulls, barn owls, bald eagles, red-tailed hawks, American kestrels, Canada geese, ducks, swallows, robins and great-blue herons, to name a few (USDA Bird Aircraft Strike Hazard 1995-2000). There were 382 bird strikes to civil aircraft reported to the FAA for the State of Washington from 1990-1998 (Cleary et al. 1999). The number of bird strikes to military aircraft in Washington is unavailable, and it is estimated that only 20-25% of all bird strikes are reported (Conover et al. 1995, Dolbeer et al. 1995, Linnell et al. 1996, Linnell et al. 1999). Hence, the number of bird strikes in Washington are most likely much greater than FAA records show.

Damage to Agriculture:

Crop damage - Bird damage to agricultural crops costs U.S. farmers more than \$100 million annually (Besser 1985) and can pose a large economic threat to agricultural producers. On many farms or orchards, bird damage is minimal and growers choose to ignore the problem or take the loss from birds into account as a management cost. For others, problems from birds can be substantial, resulting in the consumption of, or damage to large portions of the fruit crop. Damage reported to WS is often from those farmers who suffer the greatest amount of damage.

Fruit and berry production contributed over \$1.9 billion to Washington's economy in 1999. Losses reported by farmers and verified by WS in FY 1999 totaled \$66,500. Based on data collected by the NASS and WS in 1998, this figure probably represents only a fraction of the actual damage incurred throughout Washington.

For example, the Washington Blueberry Commission estimated a 10% loss in 2000, resulting in a loss of \$840,000 from bird damage (Anderson, pers. comm.). Between FY 1996-2000, WS recorded a total of \$431,550 in damage to cherry, apple, grape, blueberry, and black raspberry crops. American robins inflicted 80% of that loss, followed by gulls and house finches. California and ring-billed gull have been documented to occasionally eat dates, cherries, blueberries, and strawberries (Behle 1958; Kibbe 1979; Speich & Wahl 1989; Ryder 1993; Winkler 1996). California and Ring-billed gulls will land in cherry trees, eating the fruit straight off the tree (Cottam 1935; Ryder 1993; USDA 1995-2000). Gulls in cherry orchards do not disperse evenly, with one gull attracting the entire flock into a single tree, until all edible fruit is eaten and the flock moves to the next (Smith, pers. comm.). Migratory birds, such as ducks, geese and swans may also inflict substantial damage to alfalfa, grain, bean, lentil, and other field crops (USDA 1995-2000).

Washington aquaculture consists of penned salmon, trout, sturgeon, char, catfish, bass, carp, seaweed, and mollusks (clams, clam seed, mussels, oysters, and oyster seed). Washington leads the nation in the sale of mollusks, with a value of \$28.4 million in 1998 (NASS 2000_a). In 1998, Washington had 91 farms involved in aquaculture; 28 of these utilized fresh water while 66 were salt water operations. The economic effect of migratory birds on aquaculture farms can be extensive and can result in significant expenditure of time and funds in establishing bird management programs. In recent years, populations of normally migratory birds have been reported to remain near aquaculture facilities year-round. Besides consuming fish, birds can injure fish, disrupt their feeding activity, disturb broodstock, and contribute to the spread of diseases and parasites. In marine environments, large numbers of birds often roost on shellfish culture or holding structures (Gorenzel et al. 1994). Migratory birds commonly responsible for damage in Washington include herons, cormorants, gulls, mergansers and other diving ducks, kingfishers, and grebes (USDA 1995-2000). Aquaculture farmers reported \$545,000 in damage to WS between FY 1996-2000, of which \$541,000 consisted of damage to shellfish culture from scoters (*Melanitta* species). WS will conform with the USFWS Director's Order No. 27 when addressing damage situations at aquaculture facilities.

Livestock and poultry - Large flocks of gulls often congregate at feedlots and have been implicated in the transmission of at least 16 livestock and poultry diseases such as salmonella, botulism, coccidiosis, and beef tapeworm (Williams et al. 1977; Crewe 1967; USGS 1999). In Washington, hawks and owls have been documented to take chickens and other fowl, and have occasionally killed commercially raised game-birds (USDA 1995-2000).

Feed losses - Gulls cause damage at cattle feeding facilities when congregating, sometimes by the hundreds, to feed on silage, the most nutritious part of cattle feed. Gulls compete with cattle by selecting the high energy portion of the silage from cattle rations, raising the likelihood of infecting livestock which feed on dropping contaminated rations. (USDA 1995-2000). This removal is believed to reduce weight gains, milk yields, and is economically undesirable (Feare 1984). Damage to cattle, feed, and silage reported to WS between FY 1996-2000 amounted to \$96,930. The identification of feedlots as feeding sites has been well documented (Butterfield et al. 1983; Conover 1983; Solman et al. 1983; Ryder 1993; Winkler 1996), but little data has been collected on the impact of gulls on feedlots.

Damage to Property:

Migratory bird-caused damage to property in Washington State, reported to WS, was \$670,476 for FY 1996-2000. Migratory birds can damage vehicles, homes, buildings, water craft, equipment, bridges, industrial facilities, and other property due to fecal contamination and nest building. Vermeer (1998) noted that a \$350,000 roof was estimated to last only half as long as originally credited because of both chemical erosion caused by defecation and of water damage caused by the blockage of drainage pipes by feathers and nest material of gulls. Corrosion damage to metal structures and painted finishes, including those on automobiles,

can occur because of uric acid from bird droppings. Woodpeckers sometimes cause structural damage to wood siding and stucco on homes, and electric utility companies occasionally have problems with birds causing power outages by shorting-out transformers and substations. In FY 1996- 2000, WS recorded damage complaints of \$229,900 from droppings, \$35,700 in woodpecker damage, and \$5,200 from electric utilities.

Landfills are a dependable source of food for gulls, and because they are often located near urban areas, their increased use by gulls and associated urban nesting has led to a identical increase in conflicts with humans (Verbeek 1977; Bradley 1980; Burger 1981; Patton 1988; Speich & Wahl 1989; Belant & Dolbeer 1993; Ryder 1993; Verbeek 1993; Winkler 1996; Belant et al. 1998). The effect of gulls on residents adjacent to landfill sites can be disheartening, with broken windows, ‘painted’ laundry, noise, littered lawns and shrubbery, damaged rooftops, and depreciated land value not uncommon (Bradley 1980; USDA 1995-2000). The control of birds is required as a minimum functional standard for solid waste handling under the Washington Administrative Code (WAC) 173-304-400 and WAC 173-304-460. In 2000, a King County owned landfill settled a \$16.5 million lawsuit with neighbors over odor, noise, vibration and bird problems (Seattle Post-Intelligencer 2000; Seattle Times 1999). Bird control at landfills is needed to prevent the spread of diseases that birds may carry from the landfill to surrounding communities (Belant et al. 1998; Norton 1986; Butterfield et al. 1983; Mudge & Ferns 1982; Fenlon 1981; Hall & Jones 1978; Williams et al. 1977; Crew 1967). WS has recorded dollar damage from solid waste and recycling operators of \$230,000 in materials and manpower attributed to gulls and cleaning their droppings from facilities (USDA 1995-2000).

Damage to Natural Resources:

Locally breeding, non-migratory flocks of ducks and geese can host diseases which pose a threat to migrating waterfowl¹ (USDA 1999). Gull predation on the eggs and chicks of other bird species (Verbeek 1993; Ryder 1993; Blokpoel and Tessier 1986) could be of serious concern if that species is sensitive, threatened or endangered (T&E). Gulls may feed upon young waterfowl and swallows, small songbirds, and T&E species of salmonids (Winkler 1996; Blokpoel & Tessier 1986; Laymon 1983; York et al. 2000). Because of the predatory nature of gulls and other migratory birds WS could be requested, in the future, to help control bird predation on other species, as currently conducted for salmonids on the Columbia River.

2.0 ALTERNATIVES

The following alternative courses of action were identified in responses to the public involvement process and interagency coordination. No new alternatives were specified during public involvement.

2.1 Alternative 1: Current Program (No Action) Alternative

Alternative 1, the Current Program Alternative, is used as the baseline for comparison with the other alternatives, therefore, more information and description is provided under this definition and under the analysis of its possible environmental impacts. Alternative 1 is the “No Action” Alternative. The “No Action” Alternative is a procedural NEPA requirement (40 CFR 1502.14(d)), and is a viable and reasonable alternative that could be selected.

Under the Current Program, WS applies direct control (see “direct control”, page 11) and technical assistance (see “technical assistance”, page 9) on a case-by-case basis. The most appropriate, effective and biologically sound methods are used to resolve damages caused by migratory birds. This approach is known as Integrated Wildlife Damage Management (IWDM) and is analyzed and discussed in Chapter 1, 1 - 7 of the USDA-

¹“...the American Association of Wildlife Veterinarians encourages local authorities and state and federal agencies to cooperate to limit the population of waterfowl on urban water areas to prevent disease outbreaks in semi-domestic as well as free-ranging ducks, geese and swans and discourages the practice of relocating nuisance or excess urban ducks, geese and swans to other parks or wildlife areas as a means of local population control”.

APHIS-ADC Programmatic EIS (1997, revised). In general terms, IWDM is comprised of all the methods available to resolve a particular wildlife problem. These methods include recommending the alteration of cultural practices as well as habitat and behavioral modification to prevent damage. Appendix 2 lists the WS wildlife damage management methods that apply to this EA. The control of wildlife damage may also require that the offending animal(s) be removed or that local populations of the offending species be reduced through lethal methods. WS control methods are employed only when requested and funded. Methods are implemented at the field level through a decision making process known as the WS Decision Model (Appendix 3). The magnitude, geographic extent, frequency, and duration of the problem are used to determine if action is warranted. The WS' National Wildlife Research Center (NWRC) is active in the development of new and improved wildlife damage management methods; as new methods are developed they are incorporated into the Current Program².

Technical Assistance:

WS provides technical assistance to the public through verbal or written advice, recommendations, demonstrations and training, and distributes literature and materials for others to use in managing bird problems. Technical assistance is usually provided following a verbal consultation or an on-site visit to determine the nature and history of the problem, extent of damage, and identification of the species responsible for damage.

From 1996 through 2000, WS provided technical assistance over 1,300 times regarding the migratory bird species addressed in this EA. Over 50% of this assistance was gull related. In addition, WS loaned or issued at no charge a wide range of hazing and frightening devices. These included flagging, mylar tape, propane exploders, pyrotechnics, scarecrows, and effigies (USDA 1995-2000). For large or ongoing projects, WS typically requests that people purchase supplies or equipment directly from vendors.

Assistance may be given to identify the responsible wildlife species and determine the extent of damage. WS personnel most frequently suggest non-lethal techniques in resolving conflicts with migratory birds. WS may provide recommendations concerning habitat modification, removal of attractants, changes in cultural practices, behavior modification of the species, or ways to reduce specific wildlife populations to control the amount of damage they cause (see Appendix 2). Explanation of the biology, behavior, and population ecology of the species responsible for damage is occasionally sufficient to satisfy the resource owner's information needs and may result in no damage control actions being taken by WS.

WS gives lectures and demonstrations to property owners and other interested groups and frequently cooperates with other agencies in education and public information efforts. Additionally, technical papers are presented at professional meetings and conferences so that WS personnel, other wildlife professionals, and the public are updated on developments in wildlife damage management technology, laws, regulations, and agency policies.

At times, WS may recommend lethal control. In these instances, information is provided regarding the legal status of the species, permits required, the appropriate regulatory agencies, and the legal and responsible methods of control, including their biological and environmental impacts. Recipients of WS technical assistance are responsible for the implementation of recommended control actions. The WS program has no regulatory authority or control of the actions, if any, taken by others.

2. The WS' NWRC is headquartered in Fort Collins, Colorado and operates eight field stations across the United States. NWRC is responsible for the research and development of biologically sound methods of wildlife damage management. It is staffed by scientists from a range of disciplines including: animal behavior, veterinary medicine, wildlife biology, physiology, ornithology, mammalogy, zoology, chemistry, and statistics.

Table 1. Damage by migratory birds as reported to WS by category in Washington State (USDA FY1996 - 2000).

Species	Human Health & Safety	Bird Strike	Crops	Livestock/ Poultry	Feed	Aquaculture	Property	Natural Resources
California gull	X	X	X	X	X		X	X
Glaucous-winged gull	X	X					X	
Herring gull	X	X					X	X
Ring-billed gull	X	X	X	X	X		X	X
Double-crested cormorant	X	X					X	X
Pelagic cormorant		X					X	
Mallard	X	X	X		X		X	X
American coot	X						X	
dabbling ducks	X	X	X		X	X	X	X
diving ducks		X				X	X	X
sea ducks		X				X		X
Bald eagle		X		X				
Red-tailed hawk	X	X		X				X
Cooper's hawk		X		X				X
Northern harrier		X						
American kestrel		X						
Burrowing owl		X						
Great-horned owl		X		X				X
Barn owl		X					X	
Turkey vulture		X						
House finch		X	X				X	
Northern flicker	X	X	X				X	X
Great-blue heron	X	X				X	X	X
Barn swallow		X			X		X	
mixed swallow species	X	X					X	
Tundra Swan							X	
Mourning dove		X						
Western meadowlark		X						
Killdeer		X						

shorebirds		X						
Terns		X						X
Cedar waxwing			X					
American robin	X	X	X				X	

Table 1. contains only the damage reported to WS. This does not represent all of the damage affected by each of the species addressed in this table. These damages by species are not all inclusive (*e. g.* any bird species may pose a threat at airports).

Direct Control:

Direct control is provided by WS personnel in the field. Field personnel use the WS Decision Model (Appendix 3) to identify the problem, implement practical control actions, and monitor effectiveness. Direct control is usually requested when a resource owner's efforts to discourage or frighten birds away have been ineffective and technical assistance alone is inadequate. Direct control services are generally provided on a cost-reimbursable basis. This funding is provided by the resource owners, private businesses, or local, state or federal agencies. WS personnel use the IWDM approach to develop practical methods for resolving damage problems and implement the most appropriate measures on a site-by-site basis. Direct control measures provided by WS in Washington may include: harassment, exclusion, nest/egg removal, egg addling, shooting, the restricted-use avicide DRC-1339 Concentrate - Gulls (EPA# 56228-17), capture and translocation or euthanasia. Birds are captured using the most appropriate and humane method(s) available. Capture methods include: cage traps, decoy traps, nets, and the capture drug alpha chloralose (AC). Avicide use is restricted to the sites and methods listed on the label and any unconsumed baits are retrieved and disposed of according to label direction.

2.2 Alternative 2: Non-lethal Control and Technical Assistance Only Alternative

Alternative 2 would discontinue any lethal direct control of migratory birds by WS, except in emergency situations involving human health and safety. If lethal direct control were used in other situations, it would be employed by persons or programs other than WS. Both non-lethal direct control and technical assistance as described in 2.1 would continue to be provided by WS. Requests for lethal direct control would likely be referred to other wildlife management agencies. The WDFW would not accept the sole responsibility for lethal removal or capture and euthanizing of migratory birds (WDFW, pers. comm.).

2.3 Alternative 3: Lethal Control and Technical Assistance Only Alternative

Alternative 3 would discontinue any non-lethal control of migratory birds by WS. Non-lethal control would be employed by persons or programs other than WS. Technical assistance would be provided, but the implementation of non-lethal methods would be the responsibility of the cooperator.

2.4 Alternative 4: Exhaust All Non-lethal Methods Before Lethal Methods Are Considered

Alternative 4 differs from the Current Program in that the Current Program recognizes non-lethal methods as an important dimension of IWDM, gives them first consideration in the formulation of each control strategy, and recommends or uses them when practical before recommending or using lethal methods. In contrast, Alternative 4 would require that all non-lethal methods be implemented regardless of practicality before any lethal methods are recommended or used.

2.5 Alternative 5: No Federal Program Alternative

Alternative 5 would consist of no direct control or technical assistance offered or employed by WS. Under this alternative, wildlife damage conflicts would be handled by private resource owners and managers, private contractors, and/or other government agencies, and is discussed in detail in the USDA-APHIS-ADC Programmatic EIS (1997, revised).

3.0 ENVIRONMENTAL CONSEQUENCES

3.0.1 Method of Analysis

In the development of this EA, interdisciplinary issues concerning biological, economic, sociocultural, and physical impacts were identified by public involvement, interagency consultations, and WS specialists and biologists for evaluation. Each of the alternatives are examined against the following issues.

3.0.2 Issues

The following migratory bird management issues were identified as relevant to this process:

1. Effectiveness of control measures in reducing or minimizing damage.
2. Impact of control methods on non-targets, including Threatened and Endangered (T&E) Species.
3. Impact on the populations of migratory birds (target species).
4. Humaneness of control methods. Humaneness is a person's perception of the impact of an action on animal pain and suffering. Individuals may perceive the humaneness of an action differently.
5. Aesthetics of migratory birds and the damage they cause.

3.0.3 Issues not Analyzed in Detail with Rational

The actions discussed in this EA involve minimal ground disturbance or construction (See 'Technical Assistance' on page 9 and 'Direct Control' on page 11). Therefore, the following resource values are either not affected, or are not expected to be significantly affected by any of the alternatives analyzed: soils, geology, minerals, water quality/quantity, flood plains, wetlands, air quality, prime and unique farmlands, aquatic resources, vegetation, or cultural resources. There are no significant irreversible or irretrievable commitments or resources. These resources will not be analyzed further.

In accordance with EO 12898, all WS activities are evaluated to ensure Environmental Justice. Because the management methods proposed would not pose significant risk to humans or their environment, it is not anticipated that the proposed action would result in any adverse or disproportionate environmental impacts to minority and low-income persons or populations.

3.1 Impact of the Current IWDM Program (No Action) Alternative

3.1.1 Effectiveness of control measures.

The effectiveness of the program can be measured in terms of reduced economic losses, decreased health and safety hazards, and minimized property damage. These factors are considered on a case-by-case basis, through the use of the WS Decision Model (Appendix 3).

The Current Program provides a full range of control options which are applied in an integrated fashion to best resolve damage situations, while at the same time protecting people and the environment. The IWDM incorporates the most effective methods of resolving wildlife-caused damage. WS personnel are certified, trained, skilled professionals experienced in the application of IWDM.

WS' cooperators reimburse the agency for the wildlife damage management that they receive. A client satisfaction survey indicated that 81.5% of recipients believed that the methods and tools were effective (USDA

1994).

3.1.2 Impact on non-targets, including Threatened and Endangered Species.

The methods used under the Current Program are selective for target species. There has been little impact observed on non-target species and no known impact on T&E species (see Appendix 4, Consultations with USFWS and WDFW). All capture and removal methods allow for positive identification of target species. The toxicant, DRC-1339, is used in accordance with EPA label requirements (Appendix 5) to minimize both primary and secondary hazards to non-target animals. The capture drug, AC, is used in accordance with FDA label requirements (Appendix 5) and poses little risk to non-target animals.

3.1.3 Impact on target species.

Method of analysis: The WS' Decision Model (Appendix 3) as it relates to monitoring is discussed in detail in the USDA-APHIS-ADC Programmatic EIS (1997, revised, vol. 2, chapt. 2).

Precise counts of the bird populations addressed in this EA *do not exist*. When scientifically sound population estimates are lacking, it is common practice for management agencies to use population trend analyses to determine if species populations are “increasing”, “stable”, or “decreasing”. These trend analyses are determined by taking actual counts at specific locations at regular intervals and comparing several years data. WS recognizes there are shortcomings in the Audubon Society Christmas Bird Count (CBC) and North American Breeding Bird Survey (BBS). It is, however, the best information currently available, and the Current Program is not likely, nor designed, to impact populations on a state-wide basis (USFWS₃, pers. comm.).

The 5-year population trend analysis were derived from the CBC's 1996 through 2000 using the most recent circles (47) found in the State of Washington. The CBC index is taken from a winter count survey occurring in December and January. Winter weather patterns often affect bird migrations, sometimes accelerating, delaying, or disrupting movements. Winter surveys of migratory birds may be less reliable than summer surveys, especially when only five years are examined. In addition, the local CBC for 1997 was low for most species due to a severe storm in western Washington which caused an unusually small number of volunteers to turn out (Easterberg, pers. comm.).

The 32-year population trend analyses were calculated by the United States Geological Survey, Patuxent Wildlife Research Center (Sauer et al. 2000). This index is taken from the BBS, a summer count survey. Overall, 22% of the species in the survey can be characterized as birds with specialized habitats or limited distributions in the BBS range, with hunted species, coniferous forest nesting species, waterfowl, and wetland nesting species guilds having >22% of their species with high variances (BBS 1966-1998). Many of the species discussed in this EA fall into this category. Those species with 'P' values of greater than <0.1 do not show trend estimates with an acceptable level of certainty or significance (USFWS₂, pers. comm.).

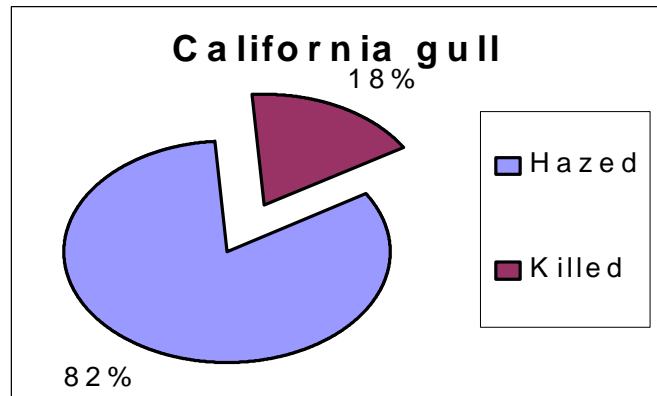
For those species where the typical level of harassment and lethal take is low (Table 2), the impacts of these actions at the local, regional, or national population scale are insignificant (USFWS₂, pers. comm.).

GULLS

Gulls are the primary species of wildlife damage management concern in Washington, therefore supplemental information pertaining to their distribution throughout North America and population status in Washington is discussed. Gulls are protected under the Migratory Bird Treaty Act. There are no indications that WS' activities have negatively effected populations of gull species on projects relevant to this EA (USDA 1995-2000). The USFWS (pers. comm. ₃) concurs that the level of take of migratory birds for the purpose of site-specific damage control, as described under the Current Program Alternative (Proposed Action), is not likely

to effect migratory bird populations at the regional or national scale.

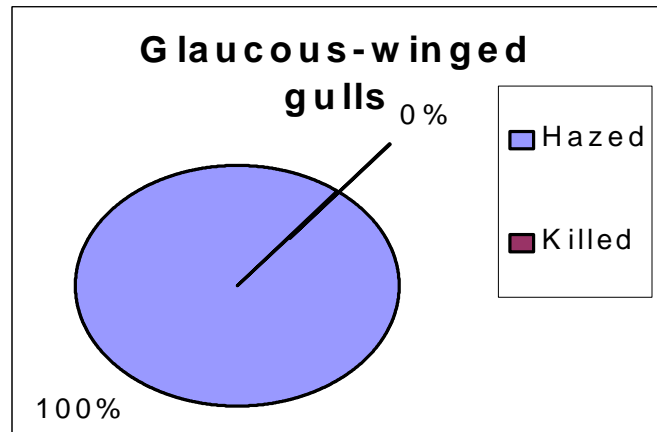
California gull: California gulls (*Larus californicus*) are distributed north to south from the Northwest and Nunavut Territory, Canada, to Mono Lake and south San Francisco Bay, California, and from the Dakotas in the east to the Pacific Ocean (Winkler 1996). The breeding population in Washington was 138,000 pairs in 1980 (Conover 1983), with both sexes becoming sexually mature at 4 years of age. Average life expectancy is unknown, but the oldest band recovered bird was 27 years old. The annual adult survival is 92% for sub-adults and 75%-79% for adults (Winkler 1996).



The Washington Ornithological Society (WOS) (1999) has shown the California gull to be a year-round resident of Washington. On average, WS has hazed 3,962 and lethally removed 848 California gulls per year over the last 5 years on WS' projects relevant to this EA (Fig. 1a) (USDA 1995-2000).

Glaucous-winged gull: Glaucous-winged gulls (*Larus glaucescens*) are distributed north to south from Alaska, to the Sonora in Mexico, never venturing far from the Pacific coastline (Verbeek 1993). The breeding population in Washington was 18,500 pairs in the late 1980's (Speich & Wahl 1989), with both sexes becoming sexually mature between 4-7 years of age (Reid 1988). Average life expectancy is 13.5 years with an annual adult survival of 83%-87% (Vermeer 1963).

Figure 1a. Percentage of gulls hazed and killed on projects in Washington by WS (USDA 1995-2000).



The glaucous-winged gull population has steadily increased in numbers, particularly in urban areas, over the last few decades (Verbeek 1993; Eddy 1982). Both glaucous-winged gull and glaucous-winged gull x western gull (*Larus occidentalis*) hybrid data was combined to form the CBC index in Figure 2a. This species is known to hybridize with western gulls in northern Oregon and Washington, although to what extent is unknown, and resulting hybrids are often difficult to identify (Verbeek 1993). The WOS (1999) has shown the glaucous-winged gull to be a common species throughout western Washington all year long. WS has addled 552 eggs, hazed 101,247 and lethally removed 327 glaucous-winged gulls on average per year over the last 5 years on projects relevant to this EA (Fig. 1b) (USDA 1995-2000).

Herring gull: Herring gulls (*Larus argentatus*) are distributed from the Atlantic coast, north to Baffin Island and throughout arctic Canada into eastern Alaska. From Alaska, their range expands south along the Pacific coast, Baja Peninsula and the Gulf of Mexico. The population in Washington is largely migratory, with an average life expectancy of 15-20 years (Kadlec 1976) and annual adult survival of 80-85% (Coulson & Butterfield 1986).

The WOS (1999) has shown herring gulls to be

Figure 1b. Percentage of gulls hazed and killed on projects in Washington by WS. Actual % killed is 0.0032 (USDA 1995-2000).

commonly abundant in eastern Washington from October-May, and fairly rare to common in western Washington from September-April. Herring gulls may hybridize

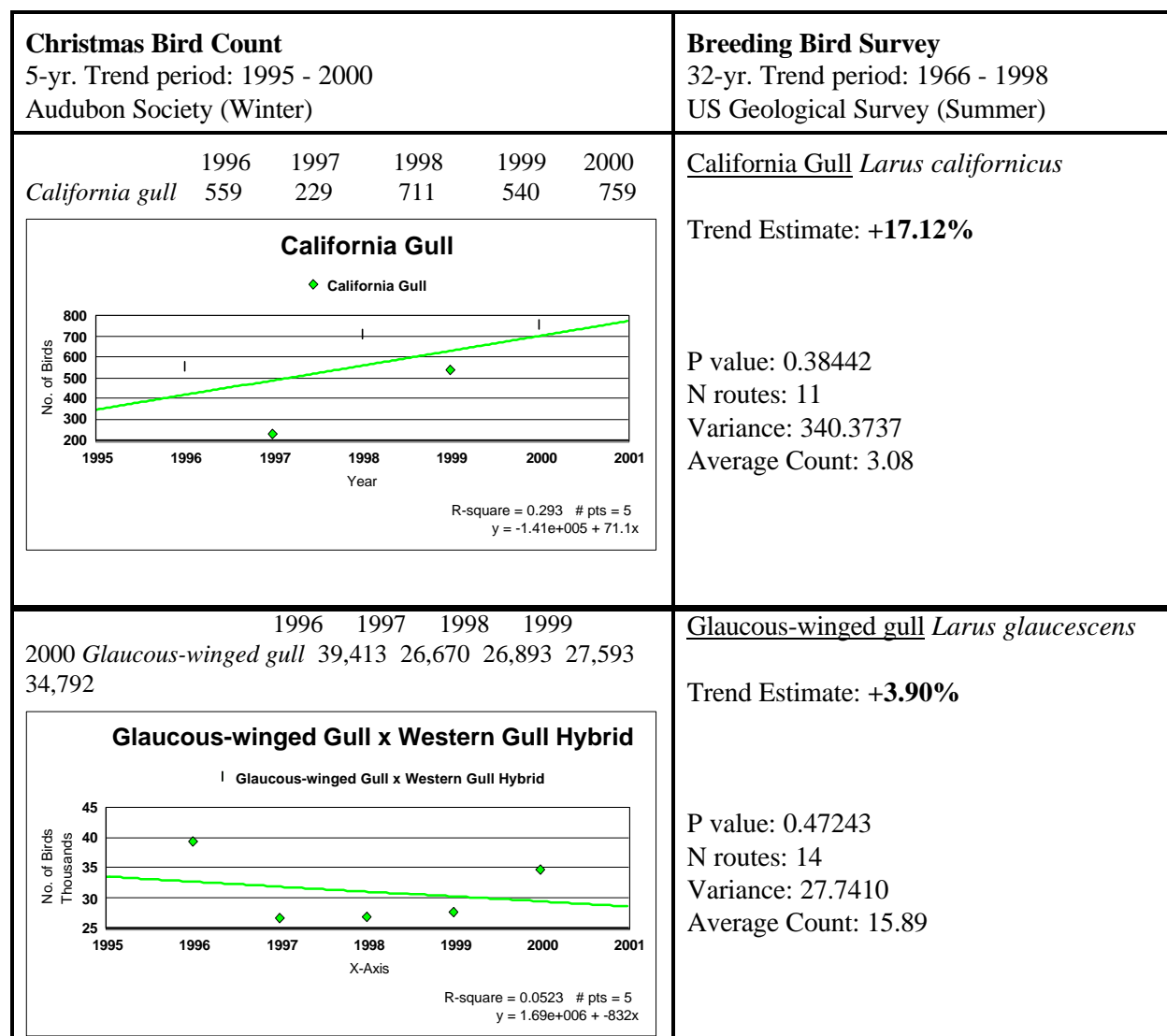


Figure 2a. A comparison of 2 population trend indices (CBC-BBS). The bird counts in these analyses are index indicators of population trends, not estimates of total bird populations.

with glaucous-winged gulls (Pierotti & Good 1994). On average, WS has hazed 3,921 and lethally removed 117 herring gulls per year over the last 5 years on projects relevant to this EA (Fig. 1c) (USDA 1995-2000).

Ring-billed gull: Ring-billed gulls (*Larus delawarensis*) are widely distributed throughout the provinces of Canada and Great-Lakes region, west to the Pacific coast, and south from Washington to central Mexico, the Gulf of Mexico and eastward through the Mississippi Valley and along the Atlantic coast north to Massachusetts. An estimated 3 to 4 million individuals inhabited North America in 1990 (Ryder 1993), and 2001 population estimates for Washington are around 390,011 individuals, based on 106,000 birds and a 6.4% growth rate reported by Conover (1983) in 1980.

Figure 1c. Percentage of gulls hazed and killed on projects in Washington by WS (USDA 1995-2000).

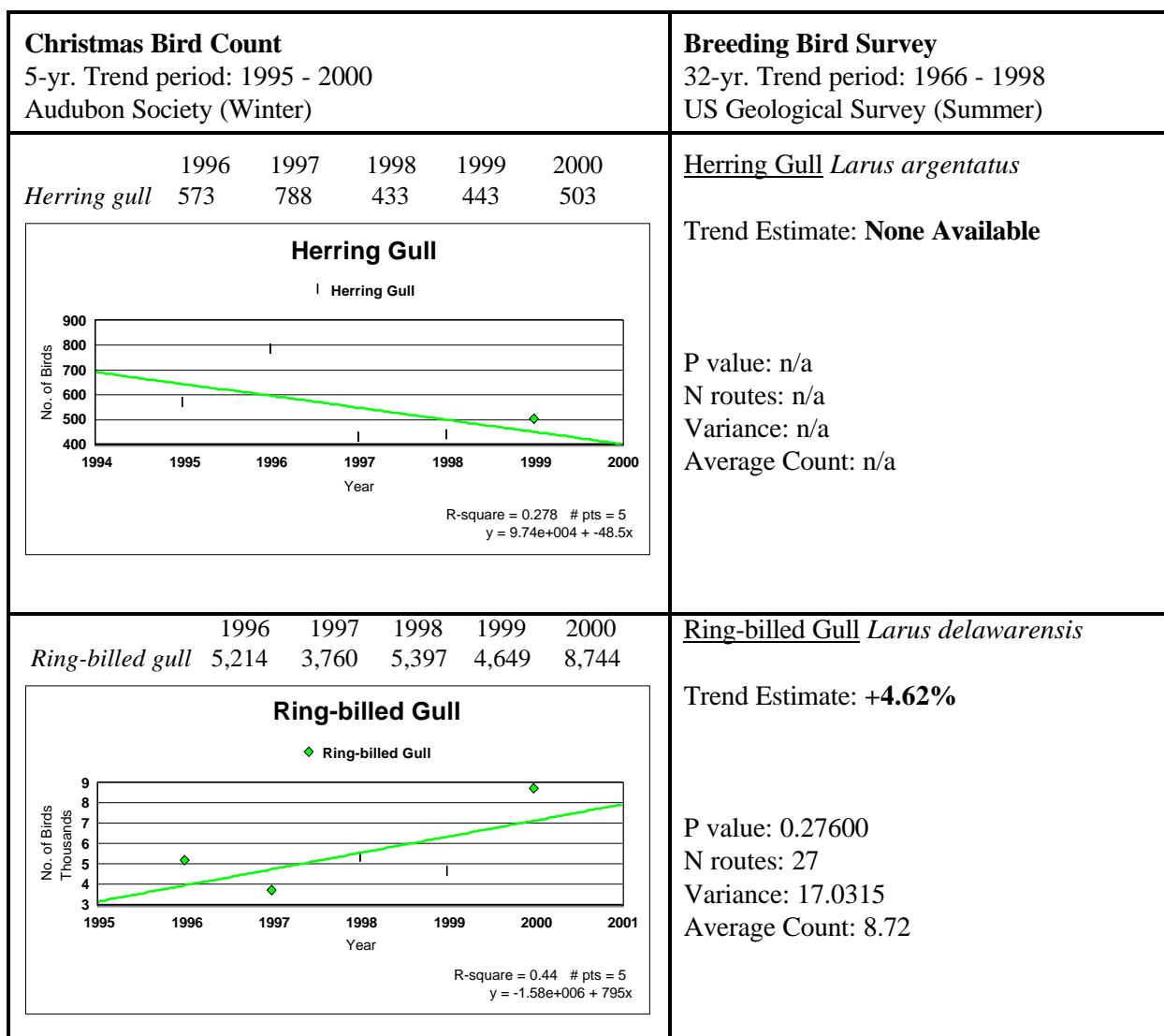
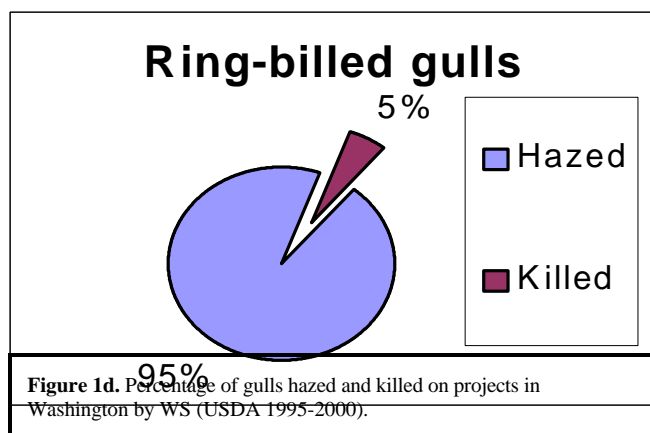


Figure 2b. A comparison of 2 population trend indices (CBC-BBS). The bird counts in these analyses are index indicators of population trends, not estimates of total bird populations.

Ring-billed gulls become sexually mature at about 4 years of age and have a life expectancy of approximately 20 years (Southern 1967 & 1975).

Numbers of breeding birds fluctuate from year to year, though they have increased overall in the past 50 years due to dam projects in eastern Washington (Conover 1983). The CBC (1996-2000) averages 5,550 ring-billed gulls per year in the winter and the WOS (1999) has shown this species to be commonly abundant year-round in both eastern and western Washington. On average, WS has hazed 67,444 and lethally removed 3,747 ring-billed gulls per year over the last 5 years on projects relevant to this EA (Fig. 1d) (USDA 1995-2000). In FY 1998, WS lethally removed



Christmas Bird Count 5-yr. Trend period: 1995 - 2000 Audubon Society (Winter)	Breeding Bird Survey 32-yr. Trend period: 1966 - 1998 US Geological Survey (Summer)
<div> <div>1996 1997 1998 1999</div> <div>2000</div> <div> Double-crested Cormorant 7,511 5,640 5,474 4,460 </div> </div>	<div> <div> Double-crest. Corm. <i>Phalacrocorax auritus</i> </div> <div> Trend Estimate: +12.07% </div> <div> P value: 0.29570 N routes: 11 Variance: 116.4393 Average Count: 1.12 </div> </div>

Figure 2c. A comparison of 2 population trend indices (CBC-BBS). The bird counts in these analyses are index indicators of population trends, not estimates of total bird populations.

4,500 ring-billed gulls with DRC-1339 Concentrate - Gulls (EPA #56228-17) for the protection of feed/livestock. This was the first and only time that DRC-1339 had been used to reduce gull damage in the State of Washington.

Collis et al. (1999) collected direct counts of on-colony individuals on the lower Columbia River between 1996-1998. California and ring-billed gulls were not differentiated in the census of six colonies, which found 53,252 birds. These colonies were found between The Dalles Dam and Island #18, north of Richland, Washington. Nysewander et al. (2001) documented winter and summer densities of glaucous-winged, California, and ring-billed gulls in Puget Sound between 1992-1999. Overall mean densities ranged from 17.5 to 34.9 birds per km² in winter, but by summer overall densities showed an increase by 66%.

NON-GULL SPECIES

The bird species discussed below are rarely managed by WS and the number lethally removed is historically very low (Table 2) on projects relevant to this EA. There has been no observed impact on the overall populations of these species as a result of WS' activities. When lethal control is required, it is usually in response to immediate human health and safety concerns. Should there ever be a future need for WS to become more involved in the management of damage caused by these species on projects relevant to this EA, it is anticipated that the impact on the overall population would be equivalent to the Current Program.

Double-crested cormorant: Double-crested cormorant (*Phalacrocorax auritus*) populations in Washington appear to be stable (Fig. 2c). WS hazed 1,050 and lethally removed 4 birds between FY 1996-2000 (Table 2) on projects relevant to this EA (USDA 1995-2000). There has been no observed impact on the overall population of this species.

On November 8, 1999, the USFWS, in cooperation with WS, published a Notice of Intent to prepare an EIS and national management plan for the double-crested cormorant. This action was in response to increasing populations of cormorants, and subsequent growing concern from the public and natural resource

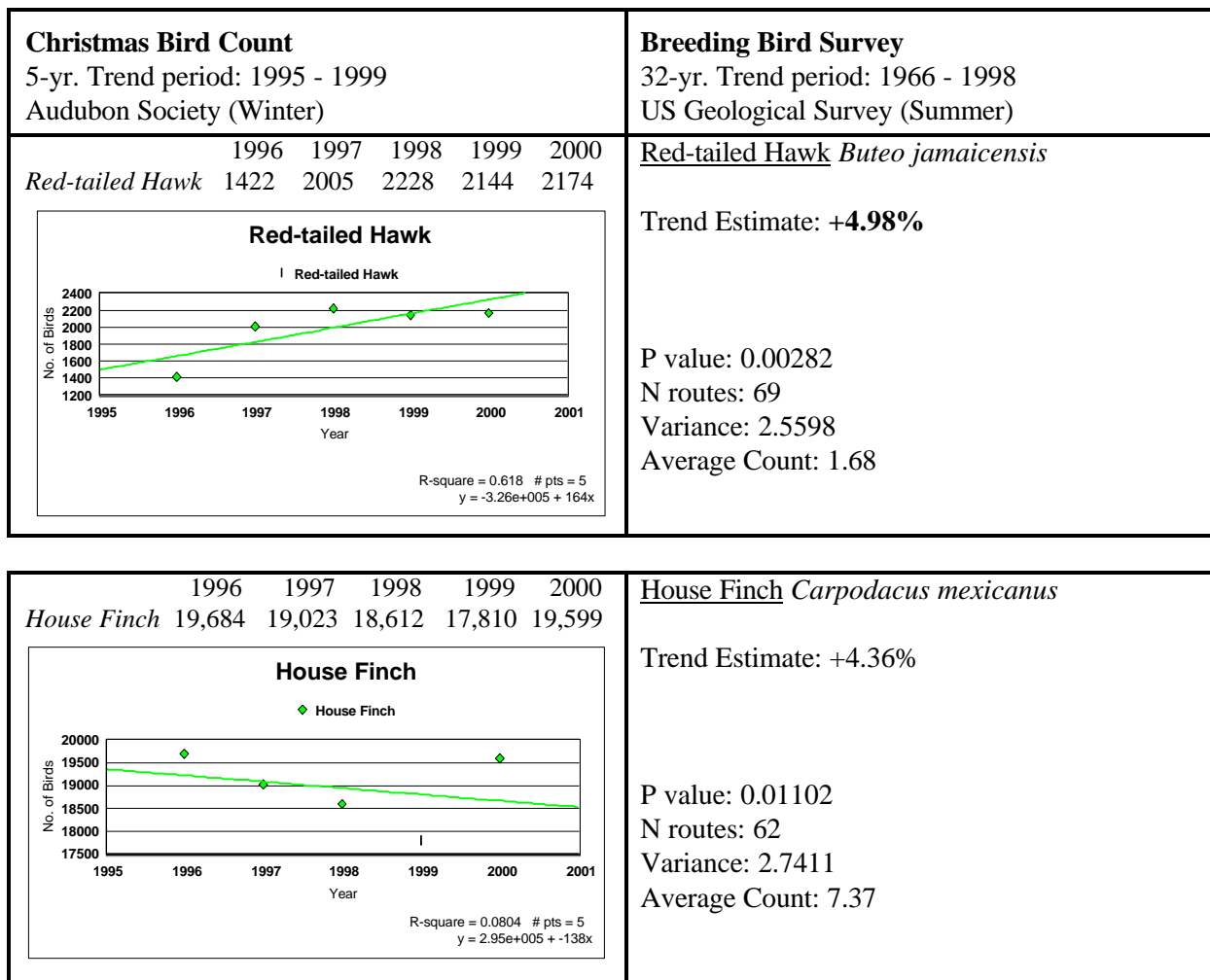


Figure 2d. A comparison of 2 population trend indices (CBC-BBS). The bird counts in these analyses are index indicators of population trends, not estimates of total bird populations.

management agencies that cormorants are negatively impacting or pose a threat to resources such as other colonial waterbirds, island vegetation, aquacultural stock, and sport fish populations.

Other species of cormorants found in the Pacific Northwest include the pelagic cormorant (*Phalacrocorax pelagicus*) and Brandt's cormorant (*Phalacrocorax penicillatus*), neither of which have been affected by WS' activities relevant to this EA (USDA 1995-2000). This does not, however, preclude the possible future need for WS to become involved in the management of damage caused by pelagic and Brandt's cormorant species.

Red-tailed hawk: The Red-tailed hawk (*Buteo jamaicensis*) population in Washington appears to be increasing (Fig. 2d) and is commonly abundant year-round in both eastern and western Washington (WOS 1999). Between FY 1996-2000, WS has hazed 178 birds, lethally removed 1 and freed 2 from cage traps (Table 2) on projects relevant to this EA (USDA 1995-2000).

House finches: Washington's house finch population appears to be stable to increasing (Fig. 2d) and is commonly abundant year-round in both eastern and western Washington (WOS 1999). The 5-year CBC shows a sharp increase between January 1999 and 2000, whereas the 10-year BBS shows a steady upward trend of over 7% . Between FY 1996-2000 WS has hazed 45 birds, lethally removed 1,257 and freed 2,696 from decoy traps (Table 2) on projects relevant to this EA (USDA 1995-2000). Two non-target house finches were lethally removed from decoy traps between FY 1996-2000.

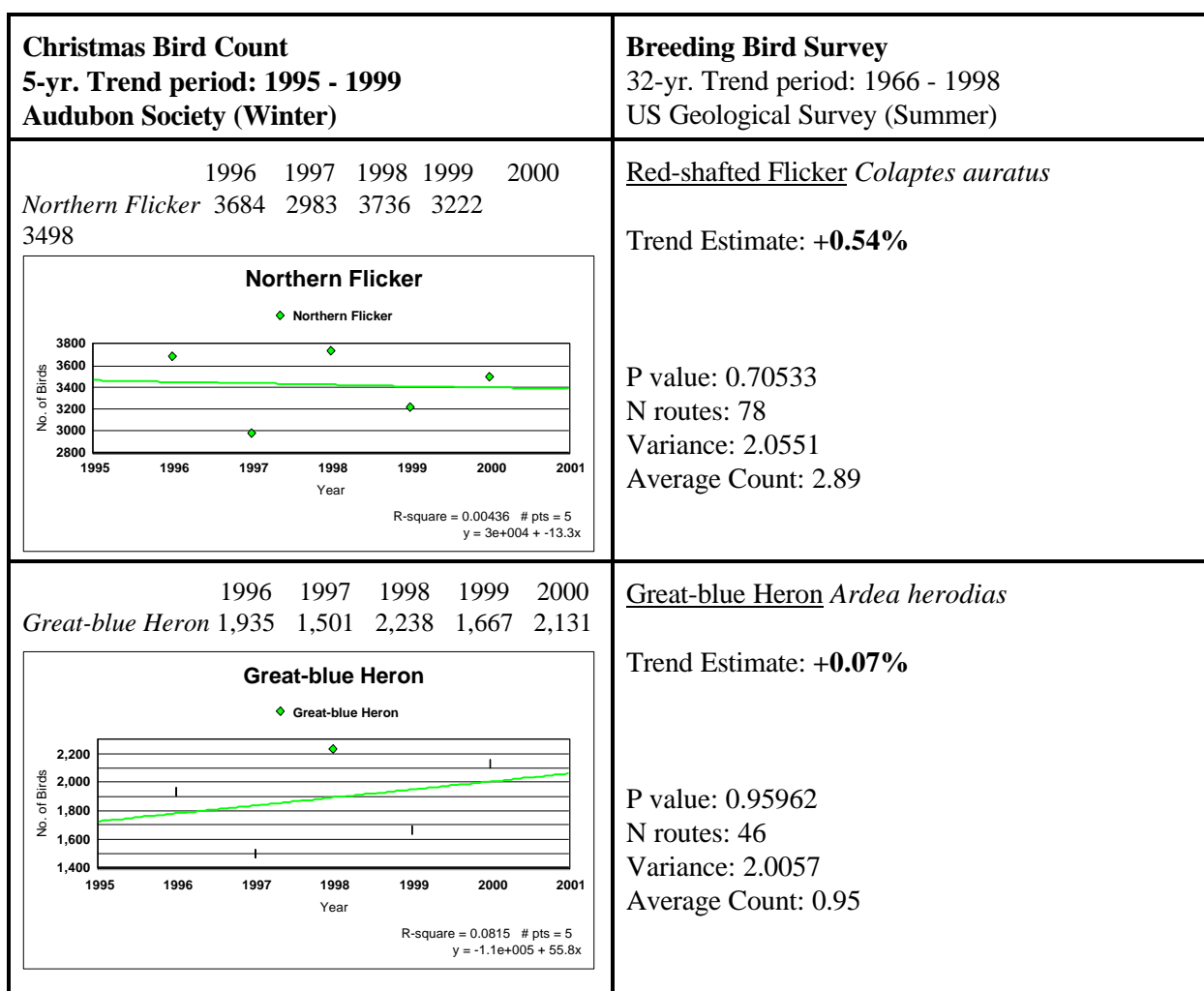


Figure 2e. A comparison of 2 population trend indices (CBC-BBS). The bird counts in these analyses are index indicators of population trends, not estimates of total bird populations.

Northern flickers: The northern flicker (*Colaptes auratus*) population in Washington appears to be stable, but fluctuates year-to-year (Fig. 2e), and is commonly abundant year-round in both eastern and western Washington (WOS 1999). WS has lethally removed 17 birds and freed 24 between FY 1996-2000 (Table 2) on projects relevant to this EA (USDA 1995-2000). One non-target northern flicker was lethally removed from a decoy trap between FY 1996-2000.

Great-blue herons: Washington's great-blue heron (*Ardea herodias*) population in Washington appears to be stable, but fluctuates greatly from year-to-year (Fig. 2e), and is commonly abundant year-round in both eastern and western Washington (WOS 1999). Data collected in King County, Washington, showed a 20 year trend of increasing heron numbers (Stabins 2001) in an area where dwindling populations were believed to occur (The Olympian 2001; The News Tribune 2001). Norman (1995) concluded that heron populations throughout most of its range in western Washington appeared to be stable. Between FY 1996-2000, WS has hazed 11 birds, lethally removed 2 and freed 1 (Table 2) on projects relevant to this EA (USDA 1995-2000).

Other heron species found in the Pacific Northwest include the green heron (*Butorides striatus*), black-crowned night heron (*Nycticorax nycticorax*), and American bittern (*Botaurus lentiginosus*), neither of which

Christmas Bird Count 5-yr. Trend period: 1995 - 1999 Audubon Society (Winter)	Breeding Bird Survey 32-yr. Trend period: 1966 - 1998 US Geological Survey (Summer)
1996 1997 1998 1999 2000 <i>American Robin</i> 15,393 23,994 22,951 19,001	<u>American Robin</u> <i>Turdus migratorius</i> Trend Estimate: +1.28% P value: 0.00005 N routes: 93 Variance: 0.0896 Average Count: 50.40

Figure 2f. A comparison of 2 population trend indices (CBC-BBS). The bird counts in these analyses are index indicators of population trends, not estimates of total bird populations.

have been affected by WS' activities relevant to this EA (USDA 1995-2000). This does not, however, preclude the possible future need for WS to become involved in the management of damage caused by these heron species.

American robins: The American robin (*Turdus migratorius*) population in Washington appears to be increasing (Fig. 2f), and is commonly abundant year-round in both eastern and western Washington (WOS 1999). Between FY 1996-2000, WS has hazed 617 birds, lethally removed 7 and freed 77 from cage traps (Table 2) on projects relevant to this EA (USDA 1995-2000).

WATERFOWL

(Including Dabbling & Diving Ducks, Geese, and Swans)

Migratory waterfowl, including swans, are managed and protected by the USFWS and WDFW. These species, with the exception of swans, are legally hunted in Washington with seasons and bag limits set by both agencies. The number of migratory waterfowl lethally removed by WS has been historically low (Table 2) and is usually in response to immediate human health and safety concerns, particularly at airports. At current levels, these removals have had no observed impact on the overall populations of waterfowl (WDFW₂, pers. comm.).

WS' MIS system currently separates ducks into 3 categories: mallards, other dabblers, and divers. The MIS system has not separated ducks by species in the past, however, a request for additional species codes has been submitted to the oversight committee so as to improve monitoring of these species.

No migratory geese or swans have been lethally removed by WS for the 5-year period, FY 1996-2000 on projects relevant to this EA (USDA 1995-2000) (see *Cumulative Impacts*, pg 30). The USDA-APHIS-WS EA (1999) on resident Canada geese discusses management of this species further. Damage situations may arise where direct control (page 10) on projects within the scope of this EA would be needed. In that event, WS would consult with appropriate State and Federal management agencies, a permit would be required, and a report of the take would be made to the USFWS.

Dabbling ducks: On average, WS has hazed 3,764, addled 11 eggs, and lethally removed 6 dabbling ducks per year over the last 5 years on projects relevant to this EA (USDA 1995-2000). Two non-target dabbling ducks were lethally removed between FY 1996-2000. Lethally removed birds may have included: gadwall (*Anas strepera*), American wigeon (*Anas americana*), northern shoveler (*Anas clypeata*), green-winged teal

(*Anas crecca*), and wood duck (*Aix sponsa*).

Diving ducks: On average, WS has hazed 91 and lethally removed 3 diving ducks per year over the last 5 years on projects relevant to this EA (USDA 1995-2000). Lethally removed birds may have included: ring-necked duck (*Aythya collaris*), greater scaup (*Aythya marila*), common goldeneye (*Bucephala clangula*), and bufflehead (*Bucephala albeola*).

Mallard: On average, WS has hazed 105 and lethally removed 14 mallards per year over the last 5 years on projects relevant to this EA (USDA 1995-2000). One non-target mallard was lethally removed between FY 1996-2000.

3.1.4 Humaneness of control methods

WS control methods employed under the Current Program are listed in Appendix 2. Descriptions of those methods are found in the USDA-APHIS- ADC Programmatic EIS (1997, revised).

The issue of humaneness, as it relates to the killing or capturing of wildlife is an important and complex concept that can be interpreted in a variety of ways. Humaneness is a person's perception of harm or pain inflicted on an animal, and people may perceive the humaneness of an action differently. Some individuals and groups are opposed to some of the management actions of WS. Most animal welfare organizations do not oppose the concept of wildlife damage control. However, these organizations support restrictions on control methods perceived by them as inhumane, and strongly emphasize the use of non-lethal controls. Animal rights advocates oppose any killing or harming animals for human gain, because they believe animals have rights equal to or similar to humans (Schmidt 1989, Wywiałowski 1991). Most wildlife managers agree that lethal control is a sound and sometimes necessary wildlife resource management practice (Berryman 1987).

Habitat modification, as would be recommended by WS, would be expected to have little or no effect on humaneness. Behavior modification (harassment) could be construed by some as being stressful to the target species. Population management would be viewed by some as being inhumane. WS supports the most humane, selective, and effective control techniques and continues to incorporate advances into program activities. WS personnel are experienced professionals, highly skilled in the use of management methods and are committed to minimizing pain and suffering.

3.1.5 Aesthetics of migratory birds.

Aesthetics is the philosophy dealing with the nature of beauty or the appreciation of beauty. Therefore, aesthetics is subjective in nature, dependent on what an observer regards as beautiful or distasteful. The mere knowledge that wildlife exists is a positive benefit to many people (Fulton et al. 1996). Human dimensions of wildlife damage management include identifying how people are affected by problems or conflicts between them and wildlife, attempting to understand people's reactions, and incorporating this information into policy and management decision processes and programs (Decker and Enck 1996, Decker and Chase 1997). Local residents who are experiencing damage may want effective methods to be employed, whereas unaffected parties may not see any need for action. Aesthetically speaking, a passerby may view a large flock of migratory birds with great delight, whereas the property owner may view the same birds with disdain.

"Wildlife acceptance capacity" is the limit of human tolerance for wildlife or the maximum number of a given species that can coexist compatibly with local human populations. Wildlife acceptance capacity is also known as the "cultural carrying capacity". These terms are important in urban areas, because they define the sensitivity of a local community to a specific wildlife species. For any given damage situation, there will be varying thresholds by those directly and indirectly affected by the damage. This threshold of damage is a primary limiting factor in determining the wildlife acceptance capacity.

WS recognizes the aesthetic importance of wildlife and associated viewing opportunities, but also acknowledges the unsightliness and displeasure attributed to damaging birds. Under the Current Program there would continue to be some local impacts on people's opportunities to view some individual birds or flocks. However, wildlife populations as a whole have not been negatively affected, and there has been no measurable decline in public viewing opportunities. This trend would be expected to continue.

3.1.6 Summary

The Current Program is not likely, nor designed, to impact migratory bird populations on a state-wide basis. However, some local flocks have been reduced or removed on a site-by-site basis. Most of WS' lethal efforts are directed toward gulls (Table 2). It is the goal of WS to manage wildlife caused damage, rather than to control or manage wildlife populations, and there has been no discernable impact on population levels (USFWS₃, pers. comm.).

The USFWS (pers. comm.₃) concurs that the level of take of migratory birds for the purpose of site-specific damage control, as described under the Current Program Alternative (Preferred Alternative), is not likely to effect migratory bird populations at the regional or national scale.

3.2 Impact of Non-lethal Control and Technical Assistance only Alternative

3.2.1 Effectiveness of control measures in reducing or minimizing damage

The effectiveness of control measures under this alternative would most likely be decreased compared to the Current Program, because direct control services offered by WS would no longer be available except in instances of public health and safety. The general public is not skilled in the correct application of control measures, nor are all control measures generally available to the public (*e.g.* DRC-1339, AC).

3.2.2 Impact on non-targets, including Threatened and Endangered Species

WS would have no impact on non-target species. WS would not be actively involved, and the possible impact of others is unknown. Individuals implementing control methods may pose a greater possibility of affecting non-target and T&E species.

The restricted-use avicide DRC-1339 and immobilizing drug AC, are not registered for use by the public or other wildlife agencies. In some instances, it is possible that public frustration caused by an inability to reduce losses could lead to illegal use of pesticides or chemicals, causing negative impacts on non-target, threatened, and endangered species.

3.2.3 Impact on target species

WS would have no impact on target species. It would be expected that the impact of Alternative 2 would be similar to the Current Program 3.1.3 on overall populations because WS' annual take of migratory birds, with the exception of some gull species, is very limited. However, the loss of the WS direct control program may cause public frustration and could lead to illegal a) take of migratory birds and b) use of pesticides or chemicals, which may negatively impact target bird populations.

3.2.4 Humaneness of control methods

The No Lethal Control Alternative is a modification of the Current Program Alternative. No direct control would be provided by WS, except in emergency situations involving human health and safety. WS would provide technical assistance consisting of recommendations and some training. Although many techniques may be applicable, the individual requesting assistance would determine which recommendations to implement. Direct control methods may be applied by people with little or no experience or knowledge in wildlife damage management or the humane treatment of animals. Therefore, although the recommended methods may be humane, the humaneness of their application may not be and could not be controlled. This alternative may be less humane than the Current Program Alternative.

3.2.5 Aesthetics of migratory birds

WS would have no impact on aesthetic values, because it would not be actively involved. However, individuals experiencing damage may affect aesthetic values depending on the extent of bird removal. A public over-harvest of target or non-target species could reduce viewing opportunities, or a lack of effectiveness could lead to a degradation of aesthetics caused by increased bird damage.

3.3 Impact of Lethal Control and Technical Assistance only Alternative

3.3.1 Effectiveness of control measures in reducing or minimizing damage

The effectiveness of control measures under this alternative may be decreased compared to the Current Program. Non-lethal measures would not be implemented by WS and birds causing damage would be immediately removed. Because an integrated approach is typically more effective than any single method, by not employing effective non-lethal control measures damage may increase. Management objectives set by the USFWS and WDFW may not allow large-scale removal efforts, and lethal control is not always possible at some locations for various reasons, thus reducing the effectiveness.

3.3.2 Impact on non-targets, including Threatened and Endangered Species

Impacts on non-targets, including T&E species would be similar to the Current Program (3.1.2). The risk of non-target take may increase due to the exclusive use of lethal methods. Under Section 3 of the ESA, the definition of ‘Take’ as it refers to T&E species means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. It is expected that under Alternative 3, the likelihood of T&E species being harassed may increase.

3.3.3 Impact on target species

It would be expected that the impact of Alternative 3 would be greater on target populations than under the Current Program. Because fewer birds would be hazed, it may be assumed that more birds would be taken under the Lethal Control Only Alternative. WS would continue to coordinate with appropriate state and federal agencies (Section 1.5 and 1.6) to ensure that take would not cause populations to fall below minimum population thresholds.

3.3.4 Humaneness of control methods

Because non-lethal methods are such a critical element of IWDM, the humaneness of the control methods under this alternative would be considered less humane than the Current Program Alternative (3.1.4). Some people would believe that the exclusive use of lethal methods without any regard to non-lethal methods would be less humane. Others, however, may believe that by using lethal control early, before birds overpopulate, fewer birds would be killed in the long term, thus, be more humane than the Current Program.

3.3.5 Aesthetics of migratory birds

In limited or isolated areas where control work is conducted, populations of target bird species may be brought to a level where viewing opportunities would be reduced, but there would be less unsightly bird-caused damage.

Table 2. 5-Year WS Activity Report in the State of Washington (MIS FY 1996 - 2000).

Species	FY 1996		FY 1997		FY 1998		FY 1999		FY 2000	
	Hazed	Killed	Hazed	Killed	Hazed	Killed	Hazed	Killed	Hazed	Killed
California gull			1,900	872	500	1,648	14,219	1,444	3,189	277
Glaucous-winged gull	no code	no code	no code	no code	264,738	274	179,735	904	61,762	458
Herring gull	383	7	5,100	8	139	434	13,380	69	602	66
Ring-billed gull	84,770	4,066	49,463	1,813	46,264	5,181	59,929	4,618	96,794	3,055
Gull, other *	15,580	3	42,918	3,351	18,989	1,528	1,055	15	22	
Double-crested cormorant		1			450	3	600			
Mallard					6	1	2		519	68
dabbling ducks		3	3		88	8	18,018	17	712	6
diving ducks			12		29	1	134	10	280	6
Northern Harrier									2f	1
Red-tailed hawk			5		57		30		86; 2f	1
Cooper's hawk			3f		5f		2; 4f		6f	
American kestrel	8f		6f		11f		1; 10f		2f	
Great-horned owl									1f	
Barn owl					4					
House finch	777f		1,273f		45; 10f	1,200	425f	56	211f	1
Northern flicker	1f		3f	1	6f	16	6f		8f	
Great-blue heron			1f	1	1		1	1	9	
Barn swallow						7				1
American robin	10f		2f		42f	2	23f		617	5

* WS uses a national database, the MIS, to monitor program activities. Until 1998, the MIS did not have a species code for glaucous-winged gulls, and there is currently no code for glaucous-winged X western gulls. These gulls have been reported as "gull other" in those respective years. Additionally, the "gull other" code was inadvertently used as a catch-all code by several field specialists in 1997-1998. This reporting mistake was not corrected before the year-end reports were finalized. It is estimated that about 80% of the gulls reported as "gull other" in 1997 and 1998 were ring-billed gulls and the remainder were California and glaucous-winged. These reporting oversights have since been corrected.

f = freed from live-traps

3.4 Impact of Exhaust All Non-lethal Before Lethal Methods Are Considered Alternative

3.4.1 Effectiveness of control measures in reducing or minimizing damage

The effectiveness of control measures under this alternative may be decreased compared to the Current Program, because lethal methods may be inappropriately delayed. The delayed application of what may be the most appropriate method could result in more damage to property, agriculture, natural resources, and human health and safety. Such delay could increase the potential for tragic consequences where human health and safety are at risk.

3.4.2 Impact on non-targets, including Threatened and Endangered Species

Impacts on non-targets, including T&E species, would be similar to the Current Program Alternative (3.1.2).

3.4.3 Impact on target species

It would be expected that the impact of Alternative 4 would be similar to the Current Program (3.1.3). This is based on the expectation that lethal methods used under the Current Program are used only when non-lethal methods have already been used, or are not expected to be effective. Also, since the Current Program has had no observed impact on target species, there would be no reason to expect that Alternative 4 would either.

3.4.4 Humaneness of control methods

The humaneness of the control methods under this alternative would be comparable to the Current Program Alternative (3.1.4). However, some people would believe that exhausting all non-lethal methods before using lethal methods would be more humane than the Current Program. Others would believe that unnecessarily delaying lethal control would result in the removal of more birds, and thus, be less humane than the Current Program.

3.4.5 Aesthetics of migratory birds

Analysis of aesthetics would be similar to those discussed under the Current Program Alternative (3.1.5), based on the lack of impacts on target species.

3.5 Impact of No Federal Program Alternative

3.5.1 Effectiveness of control measures in reducing or minimizing damage.

WS would have no effect on reducing damage. Taking no action could reasonably be expected to be the least effective of all of the alternatives examined in this EA. WS would not be providing technical assistance or direct control.

3.5.2 Possible impact on non-target, Threatened, and Endangered Species

This Alternative would result in no impact by WS. The impact of others would be unknown but may be greater than the Current Program (3.1.2). WS would offer no technical assistance on appropriate methods of wildlife damage management to avoid impacts on non-target and T&E species. It is possible that frustration caused by an inability to reduce losses could lead to the misapplication of methods and the illegal use of chemicals, causing negative impacts on non-target, threatened, and endangered species.

3.5.3 Impact on target species

WS would have no impact on target species populations. It would be expected that the impact of Alternative 5 would be similar to Alternative 2 (3.2.3); WS would not impact populations but individuals may. WS would offer no technical assistance on appropriate and effective methods of wildlife damage management. It is possible that frustration caused by an inability for individuals to reduce losses could lead to the misapplication of methods and the illegal use of chemicals, causing negative impacts on target bird populations.

3.5.4 Humaneness of control methods

The No Federal Program Alternative would result in no impact by WS. The impact of others would be unknown. Impacts may be similar to Alternative 2 (3.2.4). However, there would be no technical assistance from WS on humane methods of wildlife damage management.

3.5.5 Aesthetic value of depredating birds, public viewing opportunities.

Analysis of aesthetics would be similar to those discussed under Alternative 2 (3.2.5) since WS would not impact populations, but individuals may.

3.6 Cumulative Impacts

Cumulative impacts, as defined by CEQ (40 CFR 1508.7), are impacts on the environment that result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or Non-Federal) or person undertakes such other actions. Cumulative impacts may result from individually minor, but collectively significant, actions taking place over time.

Under the current program, WS addresses damage associated with birds in a number of situations throughout Washington and is expected to continue at the present level or to increase slightly in the near future. The WS program is the primary Federal program with wildlife damage management responsibilities.

Listed below is the average take per year (FY1996-2000) and range (low-high) of all WS' permitted migratory bird control operations in Washington that are relevant to this EA. Between February 28, 1995 and October 31, 2000, forty-five depredation permits were issued by the USFWS. The USFWS reported this take as extremely low (USFWS₁, pers. comm.). Permittees are required to submit an annual report of activities to the USFWS one calendar year from the issue date of the permit. Under the Current Program, no notable cumulative impact on migratory species has been observed or intended.

	<u>Range</u>		<u>Range</u>
Double-crested cormorants:	686 (191-1,256)	Northern flickers:	3 (0-16)
Pelagic cormorants:	10 (0-41)	Red-tailed hawks:	0.6 (0-3)
California gulls:	1,533 (34-2,703)	Dabbling ducks:	10 (0-17)
Glaucous-winged gulls:	391 (324-1,066)	Diving ducks:	52 (34-67)
Herring gulls:	161 (8-474)	Mallards:	14 (0-69)
Ring-billed gulls:	7,167 (3,189-11,584)	Swallows:	2 (0-7)
Great-blue herons:	149 (42-292)	House finches:	251 (0-1200)
American robins:	1 (0-7)	Northern harrier:	0.2 (0-1)
Canada geese:	908 (46-3,838)	Sharp-shinned hawk:	0.2 (0-1)

Table 3. Summary of Environmental Consequences

<div>2.0</div> <div>Alternatives</div> <div>3.0.2</div> <div>Issues</div>	<div>2.1</div> <div>Alternative 1</div> <div>(Current)</div>	<div>2.2</div> <div>Alternative 2</div> <div>(Non-lethal Only)</div>	<div>2.3</div> <div>Alternative 3</div> <div>(Lethal Only)</div>	<div>2.4</div> <div>Alternative 4</div> <div>(Non-lethal First)</div>	<div>2.5</div> <div>Alternative 5</div> <div>(No Federal Program)</div>
Effectiveness of control measures in reducing or minimizing damage.	3.1.1 Has been effective on a site by site basis. It would be expected to be the most effective alternative.	3.2.1 It would be expected to be less effective than Current Program.	3.3.1 It would be expected to be less effective than Current Program.	3.4.1 It would be expected to be less effective than Current Program.	3.5.1 Would likely be the least effective alternative.
Possible impact on non-target, Threatened, and Endangered species.	3.1.2 No overall impact observed over history of program. No impact would be expected.	3.2.2 No impact by WS. Impact of others unknown but the possibility of negative impacts would exist.	3.3.2 No overall impact would be expected. Level of harassed T&E species may increase.	3.4.2 No overall impact would be expected.	3.5.2 No impact by WS. Impact of others unknown but the possibility of negative impacts would exist.
Impact on target species populations.	3.1.3 No overall impact observed over history of program. No overall impact would be expected.	3.2.3 No impact by WS. Impact of others unknown, but possibility of negative impacts would exist.	3.3.3 A site-specific impact would be expected. No overall impact would be expected.	3.4.3 No overall impact would be expected.	3.5.3 No impact by WS. Impact of others unknown but the possibility of negative impacts would exist.
Humaneness of control methods.	3.1.4 Subjective, employs most humane methods available. Involves some lethal control.	3.2.4 No lethal control by WS. Impact of others unknown. Possibly viewed as less humane.	3.3.4 Subjective, Possibly viewed as less humane.	3.4.4 Subjective, employs most humane methods available. Includes some lethal control.	3.5.4 No impact by WS. Impact of others unknown. Possibly viewed as less humane.
Aesthetic value of birds and the damage they cause.	3.1.5 Aesthetic value subjective. Ample viewing opportunities would persist and unsightly bird-caused damage would be reduced.	3.2.5 No impact by WS. No impact would be expected, but unsightly bird-caused damage may increase.	3.3.5 Aesthetic value subjective. Some isolated bird viewing opportunities may be reduced, but less unsightly bird-caused damage.	3.4.5 Aesthetic value subjective. No overall impact would be expected.	3.5.5 Aesthetic value subjective. No impact by WS. Unsightly bird-caused damage would be expected to increase.

3.6.1 Cumulative impact potential from chemical methods

Migratory bird damage management projects which include lethal population management components using avicides may have the greatest potential for cumulative impacts on the environment, as such impacts relate to deposit of chemical residues in the physical environment and environmental toxicosis.

The avicide DRC-1339 Concentrate - Gulls (EPA #56228-17) is the only chemical used in the Washington WS program for the purpose of obtaining lethal effects on gulls. This chemical has been evaluated for possible residual effects which might occur from buildup of the chemicals in soil, water, or other environmental sites. DRC-1339 exhibits a low persistence in soil or water, and bio-accumulation of the chemical is unlikely (USDA 1997). In addition, the relatively small quantity of DRC-1339 used in migratory bird damage management in Washington (140grams in the last 5 years), the chemical's instability which results in speedy degradation of the product (See Appendix 5), and application protocol used in WS projects further reduces the likelihood of any environmental accumulation. DRC-1339 is not used by any other entities in Washington.

The immobilizing agent, AC, is a central nervous system depressant currently registered to capture and remove nuisance waterfowl, American coots (*Fulica americana*) and pigeons (*Columbia livia*). AC is regulated by the Food and Drug Administration (FDA) and WS is authorized to use AC under the Investigational New Animal Drug Registration (INAD 6602). WS personnel are trained and certified in its use, and are present at the site of application during baiting to retrieve the immobilized birds and unconsumed baits. Bio-accumulation in plants and animal tissue is believed to be low. The compound is slowly metabolized, with recovery occurring a few hours after administration (Schafer 1991). Toxicity to aquatic organisms is unknown (Woronecki et al. 1990) but the compound is not generally soluble in water and therefore should remain unavailable to aquatic organisms. Factors supporting the determination of this low potential included the lack of exposure to pets, non-target species and the public, and the low toxicity of the active ingredient. Other supporting rationale for this determination included relatively low total annual use and a limited number of potential exposure pathways.

Based on use patterns, chemical and physical characteristics of avicides and immobilizing agents used in Washington, and factors related to environmental fate of DRC-1339 and AC, very low or negligible impacts are expected from these chemical components used in the WS migratory bird damage management program.

3.6.2 Cumulative impact potential from non-chemical methods

Non-chemical methods of the WS program in Washington may include the recommendation of exclusion through the use of various barriers, habitat modification, harassment, shooting, capture and translocation or euthanasia. Because shooting is one component of the non-chemical WS program in Washington, the deposition of lead shot in the environment is a factor considered in this EA.

Threats of lead toxicosis to waterfowl from the deposition of lead shot in waters where such species fed were observed more than one hundred years ago (Sanderson and Belrose 1986). As a result of discoveries made regarding impacts to several species of ducks and geese, Federal restrictions were placed on the use of lead shot for waterfowl hunting in 1991. Regulations regarding this are found in 50CFR20.21.

On some projects, WS sometimes finds it necessary to shoot waterfowl under existing permits granted by USFWS, usually in airport wildlife hazard management programs where ducks or geese near aircraft operations jeopardize air passenger safety. If such activities are conducted near or over water, WS uses steel shot during activities. Consequently, no deposition of lead in nontoxic shot zones occurs as a result of WS' projects in Washington. No cumulative impacts are expected therefore, related to toxic shot and shooting as a method in the Washington WS program. In addition, WS will evaluate other wildlife damage management actions which

entail the use of shot on a case-by-case basis to determine if deposition of lead shot poses any risk to nontarget animals. If such risk exists, WS will use nontoxic shot in those situations.

Some potential exists for cumulative impacts to human health and safety related to harassment of roosting or feeding flocks of migratory birds. If birds are dispersed from one site and relocate in another where human exposure to concentrations of bird droppings over time occurs, human health and safety threats can occur. However, WS uses IWDM strategies to address such bird damage in Washington. Such strategies may result in the implementation of either or both of the following: habitat modifications to problem areas or population reductions of migratory bird numbers which are causing human health and safety impacts. The potential for harassment/dispersal and subsequent relocation of flocks of birds to produce cumulative impacts as a result of their presence in areas of human use is therefore reduced or eliminated by the overall WS IWDM strategy. Consequently, no cumulative impacts are expected from the use of harassment or other dispersal methods which might relocate flocks of roosting or feeding migratory birds to other human-occupied sites.

3.6.3 Summary

Cumulative impacts of public actions to control depredating birds in the absence (Section 2.5) or reduced (Section 2.2 & 2.4) presence of WS can only be speculated upon. However, it is reasonable to expect that as governmental assistance in resolving wildlife conflicts decreases, independent actions increase. The environmental desirability of these actions would be dependent upon the individuals who implement them. Many such actions may be poorly monitored, and public accountability would likely be low. For these reasons, cumulative impacts to the environment may be expected to increase as WS assistance decreases.

The scope of this proposal and the number of migratory birds that might be removed by WS under any of the alternatives would result in very low or negligible direct or indirect impacts. WS maintains ongoing contact with USFWS and WDFW to assure local, state and regional knowledge of wildlife population trends. WS would have a very low or negligible impact on non-target, sensitive and protected species. This finding is also made on a national level in the USDA-APHIS-ADC Programmatic EIS (1997, revised).

This EA will be reviewed periodically to assure conformance with current environmental regulations and project scope. Substantial changes in the project scope or changes in environmental regulations may trigger the requirement for a new or revised EA.

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5.0 REFERENCES

- Behle, W. H. 1958. The bird life of Great Salt Lake. Univ. Utah Press, Salt Lake City, Utah.
- Belant, J. L. and S. K. Ickes. 1996. Overhead wires reduce roof-nesting by ring-billed gulls and herring gulls. Proc. Vertebr. Pest Conf. 17: 108-112.
- Belant, J. L. and R. A. Dolbeer. 1993. Population status of nesting Laughing Gulls in the United States 1977-1991. Am. Birds 47: 220-224.
- Belant, J. L., T. W. Seamans, S. W. Gabrey, and S. K. Ickes. 1993. Importance of landfills to nesting herring gulls. The Condor 95: 817-830.
- Belant, J. L. 1997. Gulls in urban environments: landscape-level management to reduce conflict. Landscape and Urban Planning, 38: 245-258.
- Belant, J. L. 1993. Nest-site selection and reproductive biology of roof and island-nesting herring gulls. Trans. N. Am. Wildl. Nat. Resour. Conf. 58: 88-86.
- Berryman, J. H. 1987. Socioeconomic Values of Wildlife In Valuing Wildlife Economic and Social Perspectives. Westview Press, Boulder, CO USA. pp. 5-11.
- Berryman, J. H. 1991. Animal damage management: responsibilities of various agencies and the need for coordination and support. Proc. East. Wildl. Damage Control Conf. 5:12-14.
- Besser, J. F. 1985. A grower's guide to reducing bird damage to U.S. agricultural crops. Bird Damage Research rep. No. 340. USFWS Denver Wildlife Research Center. 84pp.
- Blokpoel, H. and G. D. Tessier. 1992. Control of ring-billed gulls and herring gulls nesting at urban and industrial sites in Ontario, 1987-1990. Proc. Eastern Wildl. Damage Control Conf. 5: 51-57.
- Blokpoel, H. and G. D. Tessier. 1986. The Ring-billed Gull in Ontario: a review of a new problem species. Can. Wildl. Serv. Occas. Pap. 57: 1-34.
- Bradley, T. W. 1980. "Gull-scaring trials for landfill studies". Surveyor January 24, 1980, pp. 6-7.
- Burger, J. 1981. Feeding competition between Laughing Gulls and Herring Gulls at a sanitary landfill. Condor 83: 328-335.
- Butterfield, J., J. C. Coulson, S. V. Kearsey, and P. Monaghan. 1983. The herring gull (*Larus argentatus*) as a carrier of salmonella. Journal of Hygiene, 91: 429-436.
- Cleary, E. C., S. E. Wright, and R. A. Dolbeer. 1999. Wildlife Strikes to Civil Aircraft in the United States 1990-1998. FAA Wildlife Aircraft Strike Database Serial Report No. 5, p9.
- Code of Federal Regulations Title 40, Council on Environmental Quality, NEPA Implementing Regulations 1500-1508. 1978.
- Code of Federal Regulations Title 50, Volume 1, Parts 1 to 199 [Revised as of October 1, 1998] From the U.S. Government Printing Office via GPO Access.

- Collis, K., S.L. Adamany, D.D. Roby, D.P. Craig, and D.E. Lyons. 1999. Avian predation on juvenile salmonids in the lower Columbia River. 1998 Annual Report to Bonneville Power Administration and U.S. Army Corp of Engineers, Portland, OR.
- Conover, M. R. 1983. Recent changes in Ring-billed and California Gull populations in the western United States. *Wilson Bull.* 95: 362-383.
- Conover, M. R., W. C. Pitt, K. K. Kessler, T.J. DuBow, and W. A. Sanborn. 1995. Review of human injuries, illnesses, and economic losses caused by wildlife in the United States. *Wildlife Society Bull.* 23:407-414.
- Coulson, J. C. and J. Butterfield. 1986. Studies on a colony of colour-ringed Herring Gulls *Larus argentatus*: I. Adult survival rates. *Bird Study* 33: 51-54.
- Cottam, C. 1935. Unusual food habits of California Gulls. *Condor* 37: 170.
- Crew, S. M. 1967. Worm eggs found in gull droppings. *Annals of Tropical Medicine and Parasitology* 61: 358.
- Decker, D. J. and J. W. Enck. 1996. Human dimensions of wildlife management: knowledge for agency survival in the 21st Century. *Human Dimensions of Wildlife* 1(2):60-71.
- Decker, D. J. and L. C. Chase. 1997. Human dimensions of living with wildlife - a management challenge for the 21st century. *Wildl. Soc. Bull.* 25:788-795.
- Dolbeer, R. A., S. E. Wright, and E. C. Cleary. 1995. Bird and other wildlife strikes to civilian aircraft in the U. S., 1994 Interim report DTFA01-91-Z-02004. USDA for FAA, FAA Technical Center, Atlantic City, New Jersey. p8.
- Eddy, G. 1982. Glaucous-winged Gulls nesting on buildings in Seattle, Washington. *Murrelet* 63: 27-29.
- Fenlon, D. R. 1981. Seagulls (*Larus spp.*) as vectors of salmonellae: an investigation into the range of serotypes and numbers of salmonellae in gull feces. *J. Hyg., Camb.* 86: 195-202.
- Fulton, D. C., M. J. Manfredo, and J. Lipscomb. 1996. Wildlife Value Orientations: A conceptual and measurement approach. *Human Dimensions of Wildlife* 1(2):24-47.
- Gorenzel, W. P, F. S. Conte, and T. P. Salmon. 1994. Bird Damage at aquaculture facilities. *In Prevention and Control of Wildlife Damage. University of Nebraska Coop. Ext. Service, Lincoln, NE Vol. II,* pp E-5 through E-88.
- Hall, G. A. and P. W. Jones. 1978. A study of the susceptibility to oral infection by salmonellas contained in raw sewage sludge. *Journal of Hygiene*, 80: 409-414.
- Kadlec, J. A. 1976. A re-evaluation of mortality rates in adult Herring Gulls. *Bird Banding* 47: 507-520.
- Kibbe, D. P. 1979. Niagara-Champlain Region. *Am. Birds* 33: 860-862.
- Laymon, S. A. 1983. California Gull catches Barn Swallow in flight. *Wilson Bull.* 95: 296-297.

- Leopold, A. S. 1933. Game Management. Charles Scribner & Sons. NY, NY. 481p.
- Linnell, M. A., M. R. Conover, T. J. Ohashi. 1996. Analysis of Bird Strikes at a Tropical Airport. *Journal of Wildlife Management* 60(3):935-945.
- Linnell, M.A., M. R. Conover, T. J. Ohashi. 1999. Biases in bird strike statistics based on pilot reports. *Journal of Wildlife Management* 63(3):997-1003.
- MacDonald, J. W. and P. D. Brown. 1974. *Salmonella* infection in wild birds in Britain. *Vet. Rec.* 108: 553-555.
- Monaghan, P., C. B. Shedden, C. R. Fricker, and R. W. A. Girdwood. 1985. *Salmonella* carriage by herring gulls in the Clude area of Scotland in relation to their feeding ecology. *J. Appl. Ecol.* 22: 669-680.
- Monaghan, P. and J. C. Coulson. 1977. Status of large gulls nesting on buildings. *Bird Study* 24: 89-104.
- Mudge, G. P. and P. N. Ferns. 1982. The feeding ecology of five species of gulls (*Aves: Larini*) in the inner Bristol Channel. *J. Zool. (Lond.)* 197, 497-510.
- NASS. 1999. Fruit Wildlife Damage. NASS 5pp. www.usda.gov/nass/
- NASS. 2000. Washington Agricultural Statistics 2000.
- NASS. 2000_a. Aquaculture News Release, February 2, 2000. www.nass.usda.gov/wa/aquanews.htm
- National Audubon Society, Christmas Bird Count 1996-2000. www.birdsource.tc.cornell.edu/cbcddata/
- News Tribune, The. 2001. Herons face uncertain fate. Tuesday, April 10.
- Norman, D. 1995. The status of great blue herons in Puget Sound: population dynamics and recruitment hypothesis. *In* Marine Mammals and Birds, Puget Sound Research '95 General Session Abstracts. pp. 638-645
- Norton, R. L. 1986. Case of botulism in laughing gulls at a landfill in the virgin Islands. *Greater Antilles. Florida Field nat.* 14: 97-98.
- Nysewander, D.R., J.R. Evenson, B.L. Murphie, and T.A. Cyra. 2001. Report of Marine Bird and Marine Mammal Component, Puget sound Ambient Monitoring Program, for July 1992 to December 1999 Period. Report prepared for Washington Department of Fish and Wildlife and Puget Sound Action Team by WDFW Wildlife Management Program, Olympia, WA. 162 pp.
- Olympian, The. 2001. Herons under siege around Puget Sound. Thursday, May 17.
- OSHA sanitation standard 29CFR 1910.141(a)(5) pp2.
- OSHA. 1999. Occupational Safety & Health News Vol. 29, No. 21
www.osha.gov/media/ashnews/oct99/national-19991020.html
- Patton, S. R. 1988. Abundance of gulls at Tampa Bay landfills. *Wilson Bull.* 100: 431-442.
- Personal Comm. University of Washington, Environmental Health & Safety Department, undated, C.

Easterberg.

Personal Comm. USDA-WS Specialist, 6/25/01, [REDACTED].

Personal Comm. U.S. Fish and Wildlife Service₍₁₎, 7/15/01, T. Tate-Hall.

Personal Comm. U.S. Fish and Wildlife Service₍₂₎, 7/25/01, D. Wesley, T. Zimmerman, and M. Green.

Personal Comm. U.S. Fish and Wildlife Service₍₃₎, 9/14/01, B. Bortner, T. Zimmerman, and M. Green.

Personal Comm. Washington Blueberry Commission, 7/11/01, G. Anderson.

Personal Comm. Washington Department of Fish and Wildlife₍₁₎, 7/20/01, R. Beach, E. Cummins.

Personal Comm. Washington Department of Fish and Wildlife₍₂₎, 9/12/01, D. Kraege.

Pierotti, R. J. and T. P. Good. 1994. Herring Gull (*Larus argentatus*). In The Birds of North America, No. 124. The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, D.C.

Reid, W. V. 1988. Population dynamics of the Glaucous-winged Gull. J. Wildl. Manage. 52: 763-770.

Robbins, C. S., B. Bruun, and H. S. Zim. 1983. A guide to field identification birds of North America. Golden Books publ. Co., Inc., Racine, WI p226.

Ryder, J. P. 1993. Ring-billed Gull (*Larus delawarensis*). In The Birds of North America, No. 33. The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, D.C.

Sanderson, G. C. and F. C. Bellrose. 1986. A review of the problem of lead poisoning in waterfowl. Illinois Natural History Survey, Champaign, IL. Spec. Publ. 4. Jamestown ND: Northern Prairie Wildl. Res. Ctr. Home Page. www.npwrc.usgs.gov/resource/othrdata/pbpoison/pbpoison.htm.

Sauer, J. R., J. E. Hines, I. Thomas, J. Fallon, and G. Gough. 2000. The North American Breeding Bird Survey, Results and Analysis 1966 - 1999. Version 98.1, USGS Patuxent Wildlife Research Center, Laurel, MD. www.mbr-pwrc.usgs.gov/bbs/bbs.html

Schafer, E. W. 1991. "Bird control chemicals-nature, mode of action and toxicity." pp. 599-610 in CRC Handbook of Pest Management in Agriculture Vol. II. CRC Press, Cleveland, OH.

Schmidt, R. H. 1989. Animal Welfare and Wildlife Management. Trans. 54th N. A. Wildl. & Nat. Res. Conf. pp468-475.

Seattle Post-Intelligencer. 2000. Wanted: Ideas to foul seabirds at Edmonds ferry dock. Saturday, August 12.

Seattle Post-Intelligencer. 2000. County Oks settlement of Cedar Hills landfill suit. Tuesday, May 16.

Seattle Times. 1999. County seeks to expand Cedar Hills Landfill, but neighbors feel dumped on. Tuesday, June 1.

Southern, W. E. 1967. Colony selection, longevity, and Ring-billed Gull populations: Preliminary

- discussion. Bird-Banding 38: 52-60.
- Southern, W. E. 1975. Longevity records for Ring-billed Gulls. Auk 92: 369.
- Speich, S. M. and T. R. Wahl. 1989. Catalog of Washington Seabird Colonies. USDI-FWS Biological Report 88(6), pp44-52.
- Stabins, A. 2001. Great Blue Herons in King County, Washington. Unpubl. Masters Thesis, University of Washington, Seattle.
- USDA, APHIS, ADC. 1989. Strategic Plan. USDA, APHIS, ADC operational Support Staff, 4700 River Road, Unit 87, Riverdale, MD 20737
- USDA, APHIS. 1994. Client Satisfaction Survey. A summary of ADC clients served from Oct. 1992 through Sep. 1993. p.10.
- USDA, APHIS, ADC. 1997, revised. ADC Program Final EIS. 3 Volumes. Washington, D.C.
- USDA, APHIS, WS. 1997. Predator Damage Management in Washington EA. Olympia, WA.
- USDA, APHIS, WS. 1999. Management of Conflicts Associated with Non-migratory (resident) Canada Geese in the Puget Sound Area EA & FONSI. Olympia, WA.
- USDA, APHIS, WS. 2000. Bird Damage Management in the State of Washington EA & FONSI. Olympia, WA.
- USDA, APHIS, WS. 1995-2000. Annual Tables, MIS.
- USDA, National Food and Agriculture Council. 2001. On Guard Against Foot-and-Mouth Disease. Memorandum, June 12, 2001.
- USFWS. 1987. Field Guide to Wildlife Diseases, General Field Procedures and Diseases of Migratory Birds. (Friend, M. and C. J. Laitman Editors). USDI-FWS Resource Publication 167.
- USGS. 1999. Field Manual of Wildlife Diseases, General Field Procedures and Diseases of Birds. (Friend, M. and J. C. Franson Technical Editors). Biological Resources Division Information and Technology Report 1999-001.
- Verbeek, N. A. M. 1993. Glaucous-winged Gull (*Larus glaucescens*). In The Birds of North America, No. 59. The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, D.C.
- Verbeek, N. A. M. 1977. Comparative feeding ecology of Herring Gulls (*Larus argentatus*) and Lesser Black-backed Gulls (*Larus fuscus*). Ardea 65: 25-42.
- Vermeer, K., D. Irons, E. Velarde, and Y. Watanuki. 1993. The status, ecology, and conservation of marine birds of the North Pacific. Can. Wildl. Serv. Spec. Publ., Ottawa.
- Vermeer, K., D. Power and G. E. J. Smith. 1988. Habitat selection and nesting biology of roof-nesting

- Glaucous-winged Gulls. Colonial Waterbirds 11: 189-201.
- Vermeer, K. 1963. The breeding ecology of the Glaucous-winged Gull (*Larus glaucescens*) on Mandarte Island, B.C. Occas. Pap. BC Prov. Mus. 13: 1-104.
- Washington Ornithological Society. 1999. Check-List of Washington Birds. 4th Edition as Amended. www.wos.org/WAList99.htm.
- Wildlife Society, The. 1990. Conservation policies of the Wildlife Society. The Wildlife Society. Wash., D.C. 20p.
- Williams, B.M., D. W. Richards, D. P. Stephens, and T. Griffiths. 1977. The transmission of *S. livingstone* to cattle by the herring gull (*Larus argentatus*). Veterinary Record 100: 450-451.
- Winkler, D. W. 1996. California Gull (*Larus californicus*). In The Birds of North America, No. 259. The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, D.C.
- Woronecki, P. P., R. A. Dolbeer, and T. W. Seamans. 1990. Use of alpha-chloralose to remove waterfowl from nuisance and damage situations. Proc. Vertbr. Pest Conf. 14:343-349.
- Wywialowski, A.P. 1991. Implications of the animal rights movement for wildlife damage management. Proceed. Of the Great Plains Conf. 10:28-32.
- York, D. L., J. L. Cummings, J. E. Steuber, P. A. Pochop, and C. A. Yoder. 2000. The importance of migrating salmon smolt in Ring-billed and California Gull diets near Priest Rapids Dam, Washington. Western North American Naturalist 60: 216-220.

APPENDIX 1

Authority and Compliance

APPENDIX 1

Authority of Federal and State Agencies in wildlife damage management in Washington

Wildlife Services Legislative Authority

The primary statutory authority for the Wildlife Services program is the Animal Damage Control Act of 1931, which provides that:

“The Secretary of Agriculture is authorized and directed to conduct such investigations, experiments, and tests as he may deem necessary in order to determine, demonstrate, and promulgate the best methods of eradication, suppression, or bringing under control on national forests and other areas of the public domain as well as on State, Territory or privately owned lands of mountain lions, wolves, coyotes, bobcats, prairie dogs, gophers, ground squirrels, jackrabbits, brown tree snakes and other animals injurious to agriculture, horticulture, forestry, animal husbandry, wild game animals, furbearing animals, and birds, and for the protection of stock and other domestic animals through the suppression of rabies and tularemia in predatory or other wild animals; and to conduct campaigns for the destruction or control of such animals. Provided that in carrying out the provisions of this Section, the Secretary of Agriculture may cooperate with States, individuals, and public and private agencies, organizations, and institutions.”

Since 1931, with the changes in societal values, WS policies and its programs place greater emphasis on the part of the Act discussing “bringing (damage) under control”, rather than “eradication” and “suppression” of wildlife populations. In 1988, Congress strengthened the legislative authority of WS with the Rural Development, Agriculture, and Related Agencies Appropriations Act. This Act states, in part:

“That hereafter, the Secretary of Agriculture is authorized, except for urban rodent control, to conduct activities and to enter into agreements with States, local jurisdictions, individuals, and public and private agencies, organizations, and institutions in the control of nuisance mammals and birds and those mammals and birds species that are reservoirs for zoonotic diseases, and to deposit any money collected under any such agreement into the appropriation accounts that incur the costs to be available immediately and to remain available until expended for Animal Damage Control activities.”

U.S. Department of Interior, Fish and Wildlife Service Legislative Authority

The Fish and Wildlife Service’s (FWS) authority for action is based on the Migratory Bird Treaty Act of 1918 (as amended), which implements treaties with Great Britain (for Canada), the United Mexican States, Japan, and the Soviet Union. Section 3 of this Act authorized the Secretary of Agriculture:

“From time to time, having due regard to the zones of temperature and distribution, abundance, economic value, breeding habits, and times and lines of migratory flight of such birds, to determine when, to what extent, if at all, and by what means, it is compatible with the terms of the convention to allow hunting, taking, capture, killing, possession, sale, purchase, shipment, transportation, carriage, or export of any such bird, or any part, nest, or egg thereof, and to adopt suitable regulations permitting and governing the same, in accordance with such determinations, which regulations shall become effective when approved by the President”.

The authority of the Secretary of Agriculture with respect to the Migratory Bird Treaty was transferred to

the Secretary of the Interior in 1939 pursuant to Reorganization Plan No. II, Section 4(f), 4 Fed. Reg. 2731, 53 Stat. 1433.

WDFW Legislative Authority

The Department's authority for managing wildlife in the State of Washington is based on Washington State Chapter 77.12 RCW.

RCW 77.12.240 Authority to take wildlife - Disposition. The director may authorize the removal or killing of wildlife that is destroying or injuring property, or when it is necessary for wildlife management or research.

The director or other employees of the department shall dispose of wildlife taken or possessed by them under this title in the manner determined by the director to be in the best interest of the state. Proceeds from sales shall be deposited in the state treasury to be credited to the state wildlife fund. [1980 c 197 § 1; 1987 c 506 § 33; 1980 c 78 § 41; 1955 c 36 § 77.12.240. Prior: 1947 c 275 § 33; Rem. Supp. 1947 § 5992-43.]

Legislative findings and intent - 1987 c506: See note following RCW 77.04.020.

Effective date - Intent, construction - Savings - Severability - 1980 c 78: See notes following RCW 77.04.010.

WSDA Legislative Authority

The Division's authority for managing pesticides in the state of Washington is based on Washington State Chapter 15.58 RCW.

RCW 15.58 This chapter may be known and cited as the Washington Pesticide Control Act. [1971 ex.s. c 190 § 1.]

RCW 15.58.040 Director's authority--Rules. (1) The director shall administer and enforce the provisions of this chapter and rules adopted under this chapter. All the authority and requirements provided for in chapter 34.05 RCW (Administrative Procedure Act) and chapter 42.30 RCW shall apply to this chapter in the adoption of rules including those requiring due notice and a hearing for the adoption of permanent rules.

(2) The director is authorized to adopt appropriate rules for carrying out the purpose and provisions of this chapter, including but not limited to rules providing for:

(h) Adopting a list of restricted use pesticides for the state or for designated areas within the state if the director determines that such pesticides may require rules restricting or prohibiting their distribution or use. The director may include in the rule the time and conditions of distribution or use of such restricted use pesticides and may, if it is found necessary to carry out the purpose and provisions of this chapter, require that any or all restricted use pesticides shall be purchased, possessed, or used only under permit of the director and under the director's direct supervision in certain areas and/or under certain conditions or in certain quantities or concentrations. The director may require all persons issued such permits to maintain records as to the use of all the restricted use pesticides;

FAA Legislative Authority

The FAA's authority for wildlife hazard management at airports throughout the United States is based on 14 CFR Part 139, requiring certificated airports having a wildlife hazard problem to develop and implement a wildlife hazard management plan to manage and control wildlife which present a risk to public safety caused by aircraft collisions with wildlife.

139.337 Wildlife hazard management.

- (a) Each certificate holder shall provide for the conduct of an ecological study, acceptable to the Administrator, when any of the following events occurs on or near the airport:
 - (1) An air carrier aircraft experiences a multiple bird strike or engine ingestion.
 - (2) An air carrier aircraft experiences a damaging collision with wildlife other than birds.
 - (3) Wildlife of a size or in numbers capable of causing an event described in paragraph (a) (1) or (2) of this section is observed to have access to any airport flight pattern or movement area.
- (b) The study required in paragraph (a) of this section shall contain at least the following:
 - (1) Analysis of the event which prompted the study.
 - (2) Identification of the species, numbers, locations, local movements, and daily and seasonal occurrences of wildlife observed.
 - (3) Identification and location of features on and near the airport that attract wildlife.
 - (4) Description of the wildlife hazard to air carrier operations.
- (c) The study required by paragraph (a) of this section shall be submitted to the Administrator, who determines whether or not there is a need for a wildlife hazard management plan. In reaching this determination, the Administrator considers -
 - (1) The ecological study;
 - (2) The aeronautical activity at the airport;
 - (3) The views of the certificate holder;
 - (4) The views of the airport users; and
 - (5) Any other factors bearing on the matter of which the Administrator is aware.
- (d) When the Administrator determines that a wildlife hazard management plan is needed, the certificate holder shall formulate and implement a plan using the ecological study as a basis. The plan shall -
 - (1) Be submitted to, and approved by, the Administrator prior to implementation; and
 - (2) Provide measures to alleviate or eliminate wildlife hazards to air carrier operations.
- (e) The plan shall include at least the following:
 - (1) The persons who have authority and responsibility for implementing the plan.
 - (2) Priorities for needed habitat modification and changes in land use identified in the ecological study, with target dates for completion.
 - (3) Requirements for and, where applicable, copies of local, state, and Federal wildlife control permits.
 - (4) Identification of resources to be provided by the certificate holder for implementation of the plan.
 - (5) Procedures to be followed during air carrier operations, including at least -
 - (i) Assignment of personnel responsibilities for implementing the procedures;
 - (ii) Conduct of physical inspections of the movement area and other areas critical to wildlife hazard management sufficiently in advance of air carrier operations to allow time for wildlife controls to be effective;
 - (iii) Wildlife control measures; and
 - (iv) Communication between the wildlife control personnel and any air traffic control tower in operation at the airport.
 - (6) Periodic evaluation and review of the wildlife hazard management plan for -
 - (i) Effectiveness in dealing with the wildlife hazard; and
 - (ii) Indications that the existence of the wildlife hazard, as previously described in the ecological study, should be reevaluated.

(7) A training program to provide airport personnel with the knowledge and skills needed to carry out the wildlife hazard management plan required by paragraph (d) of this section.

(f) Notwithstanding the other requirements of this section, each certificate holder shall take immediate measures to alleviate wildlife hazards whenever they are detected.

(g) FAA Advisory Circulars in the 150 series contain standards and procedures for wildlife hazard management at airports which are acceptable to the Administrator.

Guidance from Part 139 handbook.

The FAA must determine that the airport operator has adequate procedures in place to take immediate action to alleviate wildlife hazards whenever they are detected. During an airport inspection, if the FAA feels that wildlife activity on or in the vicinity of the airport constitutes a wildlife hazard, the need for an ecological study must be addressed in a Letter of Correction. The airport operator shall consult with USDA and follow their direction in conducting the study and developing a Wildlife Hazard Management Plan (WHMP) if necessary.

If a WHMP is already in place, the following items will be reviewed:

- (a) The plan's effectiveness in dealing with the wildlife hazard.
- (b) Indications that the wildlife hazard described in the ecological survey, should be reevaluated.
- (c) Training of personnel with responsibilities in the WHMP.
- (d) Accomplishment of procedures outlined in the WHMP, such as inspections prior to air carrier operations.
- (e) Status of habitat modification projects or changes in land use identified in the WHMP.
- (f) Existence of current depredation permits, if applicable.

Section 139.337(a)(3) of the regulation can be used by FAA to have an airport operator initiate an ecological survey if there is an obvious wildlife problem at an airport even though a multiple bird strike, engine ingestion, or damaging collision had not yet occurred.

When an airport operator requests assistance to conduct an ecological survey, the operator shall notify and provide copies of all correspondence to the FAA. Upon receipt of survey recommendations, the FAA shall take action as deemed appropriate.

APPENDIX 2

WS Wildlife Damage Management Methods

APPENDIX 2

WS Wildlife Damage Management Methods

NON-LETHAL METHODS - NON-CHEMICAL

Agricultural producer and property owner practices. These consist primarily of non-lethal preventive methods such as cultural methods and habitat modification. Cultural methods and other management techniques are implemented by the agricultural producer and property owners. Producers and property owners are encouraged to use these methods, based on the level of risk, need, and professional judgement on their effectiveness and practicality. Producer and property owner practices recommended by WS include:

Cultural methods. These generally involve modifications to the level of care or attention given to the resource which may vary depending on the age, size, and location of the resource. Husbandry practices include but are not limited to techniques such as night feeding, indoor feeding, closed barns or corrals, removal of spilled grain or standing water, and use of bird proof feeders (Johnson and Glahn 1994).

Animal behavior modification. This refers to tactics that alter the behavior of wildlife and reduce damages. Animal behavior modification may use scare tactics or exclusion to deter or repel birds that cause loss or damage (Twedt and Glahn 1982). Some but not all devices used to accomplish this are:

- Bird-proof exclusions and feeders
- Electronic guards
- Propane exploders
- Pyrotechnics
- Distress calls and sound producing devices
- Chemical frightening agents
- Repellents
- Visual scare devices

These techniques are generally only practical for small areas. Scaring devices such as distress calls, helium filled eye spot balloons, raptor effigies and silhouettes, mirrors, and moving disks can be effective but usually for only a short time before birds become accustomed and learn to ignore them (Schmidt and Johnson 1984, Bomford 1990, Rossbach 1975, Graves and Andelt 1987, Mott 1985, Shirota et al. 1983, Conover 1982, Arhart 1972). Mylar tape has produced mixed results in its effectiveness to frighten birds (Dolbeer et al. 1986, Tobin et al. 1988).

Auditory scaring devices such as propane exploders, pyrotechnics, electronic guards, scare crows, and audio distress/predator vocalizations, are often not practical under large feedlot situations because of the disturbance to livestock, although livestock would habituate to the noise. Birds, too, quickly learn to ignore scaring devices if the birds' fear of the methods is not reinforced with shooting or other tactics.

Bird proof exclusions can be effective but are often cost-prohibitive, particularly because of the aerial mobility of birds which require overhead barriers as well as conventional netting. Exclusion adequate to stop bird movements can also restrict movements of livestock, people and other wildlife (Fuller-Perrine and Tobin 1993). Heavy plastic strips hung vertically in open doorways have been successful in some situations in excluding birds (Johnson and Glahn 1994). Plastic strips, however, can prevent filling of the feed troughs at livestock feeding facilities or can be covered up when the feed is poured

into the trough by the feed truck. They are not practical for deterring gulls from open-air feedlot operations that are not housed in buildings.

Relocation of birds to other areas following live capture generally would not be effective nor cost-effective. Since gulls, waterfowl, and most other damaging bird species are common and numerous throughout Washington, they are rarely if ever relocated because habitats in other areas are generally already occupied. Relocation of wildlife often involves stress to the relocated animal, poor survival rates, the threat of spreading disease and difficulties in adapting to new locations or habitats.

Nest destruction is the removal of nesting materials during the construction phase of the nesting cycle. Nest destruction would only be applied when dealing with a single or very few birds. This method is used to discourage birds from constructing nests in areas which may create nuisances for home and business owners. Heusmann and Bellville (1978) reported that nest removal was an effective but time-consuming method because problem bird species are highly mobile and can easily return to damage sites from long distances, or because of high populations. This method poses no imminent danger to pets or the public.

Live traps include:

Clover, funnel, and common pigeon traps are enclosure traps made of nylon netting or hardware cloth and come in many different sizes and designs, depending on the species of birds being captured. The entrance of the traps also vary greatly from swinging-door, one-way door, funnel entrance, to tip-top sliding doors. Traps are baited with grains or other food material which attract the target birds. WS' standard procedure when conducting pigeon trapping operations is to ensure that an adequate supply of food and water is in the trap to sustain captured birds for several days. Active traps are checked daily, every other day, or as appropriate, to replenish bait and water and to remove captured birds.

Decoy traps are used by WS for preventive and corrective damage management. Decoy traps are similar in design to the Australian Crow Trap as reported by Johnson and Glahn (1994) and McCracken (1972). Live decoy birds of the same species that are being targeted are usually placed in the trap with sufficient food and water to assure their survival. Perches are configured in the trap to allow birds to roost above the ground and in a more natural position. Feeding behavior and calls of the decoy birds attract other birds which enter and become trapped themselves. Active decoy traps are monitored daily, every other day, or as appropriate, to remove and euthanize excess birds and to replenish bait and water. Decoy traps and other cage/live traps, as applied and used by WS, pose no danger to pets or the public and if a pet is accidentally captured in such traps, it can be released unharmed.

Nest box traps are used by WS for corrective damage management and are effective in capturing local breeding and post breeding starlings and other targeted secondary cavity nesting birds (DeHaven and Guarino 1969, Knittle and Guarino 1976).

Mist nets are more commonly used for capturing small-sized birds such as house sparrows, finches, etc. but can be used to capture larger birds such as feral waterfowl and ring-neck pheasants. It was introduced in to the United States in the 1950's from Asia and the Mediterranean where it was used to capture birds for the market (Day et al. 1980). The mist net is a fine black silk or nylon net usually 3 to 10 feet wide and 25 to 35 feet long. Net mesh size determines which birds can be caught and overlapping "pockets" in the net cause birds to entangle themselves when they fly into the net.

Cannon nets are normally used for larger birds such as feral waterfowl and use mortar projectiles to propel a net up and over birds which have been baited to a particular site. This type of net is especially effective for feral waterfowl that are flightless due to molting and other birds which are typically shy to other types of capture.

Environmental/Habitat/Behavior modification is an integral part of wildlife damage management. The type, quality, and quantity of habitat are directly related to the wildlife that are produced. Therefore, habitat can be managed to not produce or attract certain bird species or to repel certain birds. Most habitat management revolves around airports and bird aircraft strike problems and blackbird and starling winter roosts. Habitat management around airports is aimed at eliminating bird nesting, roosting, loafing, or feeding sites. Generally, many bird problems on airport properties can be minimized through management of vegetation and water from runway areas. Habitat management is often necessary to minimize damage caused by blackbirds and starlings that form large roosts during late autumn and winter. Bird activity can be greatly reduced at roost sites by removing all the trees or selectively thinning the stand. Roosts often will re-form at traditional sites, and substantial habitat alteration is the only way to permanently stop such activity (USDA 1997).

Lure crops/alternate foods. When depredations cannot be avoided by careful crop selection or modified planting schedules, lure crops can sometimes be used to mitigate the loss potential. Lure crops are planted or left for consumption by wildlife as an alternative food source. This approach provides relief for critical crops by sacrificing less important or specifically planted fields. Establishing lure crops is sometimes expensive, requires considerable time and planning to implement, and may attract other unwanted species to the area.

NON-LETHAL METHODS - CHEMICAL

Methyl anthranilate (MA) could be used or recommended by WS as a bird repellent. MA is currently registered as a repellent to protect turf from bird grazing and as a spray for airport runways to reduce bird activity/risk on or near airports. It is also being investigated as a livestock feed additive to reduce or prevent feed consumption by birds. Such chemicals undergo rigorous testing and research to prove safety, effectiveness, and low environmental risks before they would be registered by EPA or the Food and Drug Administration (FDA).

Anthraquinone (AQ) is registered as a repellent to protect turf from goose damage. Research continues and other applications (*i.e.* seed or fruit protection) may become available in the future. Like methyl anthranilate, AQ has low toxicity to birds and mammals. Avian species consuming AQ for the first time typically exhibit no immediate aversion but are subsequently repelled due to a suspected post-ingestional response (Blackwell, et al 1999).

Alpha-chloralose is a central nervous system depressant used as an immobilizing agent to capture and remove nuisance waterfowl and other birds. It is labor intensive and in some cases, may not be cost effective (Wright 1973, Feare et al. 1981), but is typically used in recreational and residential areas, such as swimming pools, shoreline residential areas, golf courses, or resorts. Alpha-chloralose is typically delivered as a well contained bait in small quantities with minimal hazards to pets and humans; single bread or corn baits are fed directly to the target birds. WS personnel are present at the site of application during baiting to retrieve the immobilized birds. Unconsumed baits are removed from the site following each treatment. Alpha-chloralose was eliminated from more detailed analysis in USDA (1997) based on critical element screening, therefore, environmental fate properties of this compound were not rigorously assessed. However, the solubility and mobility are believed to be moderate and environmental persistence is believed to be low. Bioaccumulation in plants and animal tissue is believed to be low. Alpha-chloralose is used in other countries as an avian and mammalian toxicant. The compound is slowly metabolized, with recovery occurring a few hours after administration (Schafer 1991). The dose used for immobilization is designed to be about two to 30 times lower than the LD₅₀. Mammalian data

indicate higher LD₅₀ values than birds. Toxicity to aquatic organisms is unknown (Wornecki et al. 1990) but the compound is not generally soluble in water and therefore should remain unavailable to aquatic organisms. Factors supporting the determination of this low potential included the lack of exposure to pets, non-target species and the public, and the low toxicity of the active ingredient. Other supporting rationale for this determination included relatively low total annual use and a limited number of potential exposure pathways. The agent is currently approved for use by WS as an Investigative New Animal Drug by the FDA rather than a pesticide.

LETHAL METHODS - MECHANICAL

Egg addling/destruction is the practice of destroying the embryo prior to hatching. Egg addling is conducted by vigorously shaking an egg numerous times which causes detachment of the embryo from the egg sac. Egg destruction can be accomplished in several different ways, but the most commonly used methods are manually gathering eggs and breaking them, or by oiling or spraying the eggs with a liquid which covers the entire egg and prevents the egg from obtaining oxygen. Although WS does not commonly use egg addling or destruction for the species included in this EA, it is a valuable damage management tool and has shown to be effective.

Shooting is more effective as a dispersal technique than as a way to reduce bird densities when large number of birds are present. Normally shooting is conducted with shotguns or air rifles. Shooting is a very individual specific method and is normally used to remove a single offending bird. However, at times, a few birds could be shot from a flock to make the remainder of the birds more wary and to help reinforce non-lethal methods. Shooting can be relatively expensive because of the staff hours sometimes required (USDA 1997). It is selective for target species and may be used in conjunction with the use of spotlights, decoys, and calling. Shooting with shotguns, air rifles, or rim and center fire rifles is sometimes used to manage bird damage problems when lethal methods are determined to be appropriate. The birds are killed as quickly and humanely as possible. All firearm safety precautions are followed by WS when conducting damage management activities and all applicable laws and regulations governing the lawful use of firearms are strictly complied with.

Firearm use is very sensitive and a public concern because of safety issues relating to the public and misuse. To ensure safe use and awareness, WS employees who use firearms to conduct official duties are required to attend an approved firearms safety and use training program within 3 months of their appointment and a refresher course every 3 years afterwards (WS Directive 2.615). WS employees who carry firearms as a condition of employment, are required to sign a form certifying that they meet the criteria as stated in the *Lautenberg Amendment* which prohibits firearm possession by anyone who has been convicted of a misdemeanor crime of domestic violence.

Sport hunting is sometimes recommended by WS as a viable damage management method when the target species can be legally hunted. A valid hunting license and other licenses or permits may be required by the WDFW and USFWS for certain species. This method provides sport and food for hunters and requires no cost to the landowner. Sport hunting is occasionally recommended if it can be conducted safely for pigeon damage management around feedlots and dairies and for crop damage by crows.

Snap traps are modified rat snap traps used to remove individual flickers. These traps pose no imminent danger to pets or the public.

LETHAL METHODS - CHEMICAL

All chemicals used by WS are registered under FIFRA (administered by the EPA and WSDA) or by the FDA. WS personnel that use chemical methods are certified as pesticide applicators by WSDA and are required to

adhere to all certification requirements set forth in FIFRA and Washington pesticide control laws and regulations. Chemicals are only used on private, public, or tribal property sites with authorization from the property owner/manager.

CO₂ is sometimes used to euthanize birds which are captured in live traps and when relocation is not a feasible option. Live birds are placed in a container such as a plastic 5-gallon bucket or chamber and sealed shut. CO₂ gas is released into the bucket or chamber and birds quickly die after inhaling the gas.

DRC-1339 is a slow acting avicide that is registered with the EPA for reducing damage from several species of birds, including blackbirds, starlings, pigeons, crows, ravens, magpies, and gulls. DRC-1339 was developed as an avicide because of its differential toxicity to mammals. DRC-1339 is highly toxic to sensitive species but only slightly toxic to non-sensitive birds, predatory birds, and mammals. For example, starlings, a highly sensitive species, require a dose of only 0.3 mg/bird to cause death (Royall et al. 1967). Most bird species that are responsible for damage are highly sensitive to DRC-1339. Many other bird species such as raptors, sparrows, and eagles are classified as non-sensitive. Numerous studies show that DRC-1339 poses minimal risk of primary poisoning to non-target and T&E species (USDA 1997). Secondary poisoning has not been observed with DRC-1339 treated baits. During research studies, carcasses of birds which died from DRC-1339 were fed to raptors and scavenger mammals for 30 to 200 days with no symptoms of secondary poisoning observed (Cunningham et al. 1981). This can be attributed to relatively low toxicity to species that might scavenge on blackbirds and starlings killed by DRC-1339 and its tendency to be almost completely metabolized in the target birds which leaves little residue to be ingested by scavengers. Secondary hazards of DRC-1339 are almost non-existent. DRC-1339 acts in a humane manner producing a quiet and apparently painless death.

DRC-1339 is unstable in the environment and degrades rapidly when exposed to sunlight, heat, or ultra violet radiation. DRC-1339 is highly soluble in water but does not hydrolyze and degradation occurs rapidly in water. DRC-1339 tightly binds to soil and has low mobility. The half life is about 25 hours, which means it is nearly 100% broken down within a week, and identified metabolites (i.e., degradation chemicals) have low toxicity. Aquatic and invertebrate toxicity is low (USDA 1997). Appendix P of USDA (1997) contains a thorough risk assessment of DRC-1339 and the reader is referred to that source for a more complete discussion. That assessment concluded that no adverse effects are expected from use of DRC-1339.

Other lethal methods - chemical. There are two other lethal avian pesticides registered for use in Washington; Avitrol® and Rid-A-Bird®. WS has not used these products for more than 5 years. However, both products are available for use by licensed pesticide applicators.

* See Appendix 5 for complete Restricted Use Pesticide labels.

Literature cited:

- Arhart, D. K. 1972. Some factors that influence the response of starlings to aversive visual stimuli. M.S. Thesis. Oregon State Univ., Corvallis.
- Besser, J. F., W. C. Royal, and J. W. DeGrazio. 1967. Baiting starlings with DRC-1339 at a cattle feedlot. J. Wildl. Manage. 3:48-51.

- Blackwell, B. F., Seamans, T. W., and Dolbeer, R. A. 1999. J. Wildlife Manage. 63(4):1999. pp. 1336-1343
- Blanton, E. M., B. U. Constantin, and G. L. Williams. 1992. Efficacy and methodology of urban pigeon control with DRC-1339. Proc. East. Wildl. Damage Cont. Conf. 5:58-62.
- Bomford, M. 1990. Ineffectiveness of a sonic device for deterring starlings. Wildl. Soc. Bull. 18:151-156.
- Conover, M. R. 1982. Evaluation of behavioral techniques to reduce wildlife damage. Proc. Wildl.-Livestock Relation. Sym. 10:332-344.
- Cunningham, D. J., E. W. Schafer, and L. K. McConnell. 1981. DRC-1339 and DRC-2698 residues in starlings: preliminary evaluation of their effects on secondary hazard potential. Proc. Bird Cont. Sem. 8:31-37.
- Day, G. I., S. D. Schemnitz, and R. D. Taber. 1980. Capturing and marking wild animals. pp. 61-88 *in* Wildlife management techniques manual. S. D. Schemnitz ed. The Wildlife Society, Inc. Bethesda, MD. 686 pp.
- Decino, T. J., D. J. Cunningham, and E. W. Schafer. 1966. Toxicity of DRC-1339 to starlings. J. Wildl. Manage. 30:249-253.
- DeHaven, R. W., and J. L. Guarino. 1969. A nest box trap for starlings. Bird Banding 40:49-50.
- Dolbeer, R. A., P. P. Woronecki, and R. L. Bruggers. 1986. Reflecting tapes repel blackbirds from millet, sunflowers, and sweet corn. Wildl. Soc. Bull. 14:418-425.
- Feare, C., A. J. Isaacson, P. A. Sheppard, and J. M. Hogan. 1981. Attempts to reduce starling damage at dairy farms. Protection Ecol. 3:173-181.
- Fuller-Perrine, L. D., and M. E. Tobin. 1993. A method for applying and removing bird exclusion netting in commercial vineyards. Wildl. Soc. Bull. 21:47-51.
- Glahn, J. F. 1982. Use of starlicide to reduce starling damage at livestock feeding operations. Proc. Great Plains Wildl. Damage Cont. Work. 5:273-277.
- Glahn, J. F., S. K. Timbrook, and D. J. Twedt. 1987. Temporal use patterns of wintering starlings at a southeastern livestock farm: implications for damage control. Proc. East. Wildl. Damage Cont. Conf. 3:194-203.
- Graves, G. E., and W. F. Andelt. 1987. Prevention and control of woodpecker damage. Service in Action, Colo. St. Univ. Coop. Ex. Serv. Publ. no 6.516. Ft. Collins, Colo. 2 pp.
- Heusmann, H. W., and R. Bellville. 1978. Effects of nest removal on starling populations. Wilson Bull. 90:287-290.
- Johnson, R. J., and J. F. Glahn. 1994. European starlings. pp. E109-E120 *in* Prevention and Control of Wildlife Damage. S. Hygnstrom, R. Timm, and G. Larson eds. Coop. Ext. Ser. Univ. of Nebr.-Lincoln.

- Knittle, C. E., and J. L. Guarino. 1976. Reducing a local population of starlings with nest-box traps. *Proc. Bird Cont. Sem.* 7:65-66.
- McCracken, H. F. 1972. Starling control in Sonoma county. *Proc. Vertebr. Pest Conf.* 5:124-126.
- Mott, D. F. 1985. Dispersing blackbird-starling roosts with helium-filled balloons. *Proc. East. Wildl. Damage Cont. Conf.* 2:156-162.
- Roszbach, R. 1975. Further experiences with the electroacoustic method of driving starlings from their sleeping areas. *Emberiza* 2:176-179.
- Royall, W. C., T. J. DeCino, and J. F. Besser. 1967. Reduction of a starling population at a turkey farm. *Poultry Sci.* 46:1494-1495.
- Schafer, E. W. 1991. "Bird control chemicals-nature, mode of action and toxicity." pp. 599-610 *in* CRC Handbook of Pest Management in Agriculture Vol. II. CRC Press, Cleveland, OH.
- Schmidt, R. H., and R. J. Johnson. 1984. Bird dispersal recordings: an overview. *ASTM STP 817.* 4:43-65.
- Shirota, Y. M., M. Sanada, and S. Masake. 1983. Eyespotted balloons are a device to scare gray starlings. *Appl. Ent. Zool.* 18:545-549.
- Tobin, M. E., P. P. Woronecki, R. A. Dolbeer, and R. L. Bruggers. 1988. Reflecting tape fails to protect ripening blueberries from bird damage. *Wildl. Soc. Bull.* 16:300-303.
- Twedt, D. J., and J. F. Glahn. 1982. Reducing starling depredations at livestock feeding operations through changes in management practices. *Proc. Vertebr. Pest Conf.* 10:159-163.
- West, R. R., and J. F. Besser. 1976. Selection of toxic poultry pellets from cattle rations by starlings. *Proc. Bird Cont. Sem.* 7:242-244.
- West, R. R., J. F. Besser, and J. W. DeGrazio. 1967. Starling control in livestock feeding areas. *Proc. Vert. Pest Conf.* 3:89-93.
- Wornecki, P. P., R. A. Dolbeer, and T. W. Seamans. 1990. Use of alpha-chloralose to remove waterfowl from nuisance and damage situations. *Proc. Vertbr. Pest Conf.* 14:343-349.
- Wright, E. N. 1973. Experiments to control starling damage at intensive animal husbandry units. *Bull. OEPP.* 9:85-89.

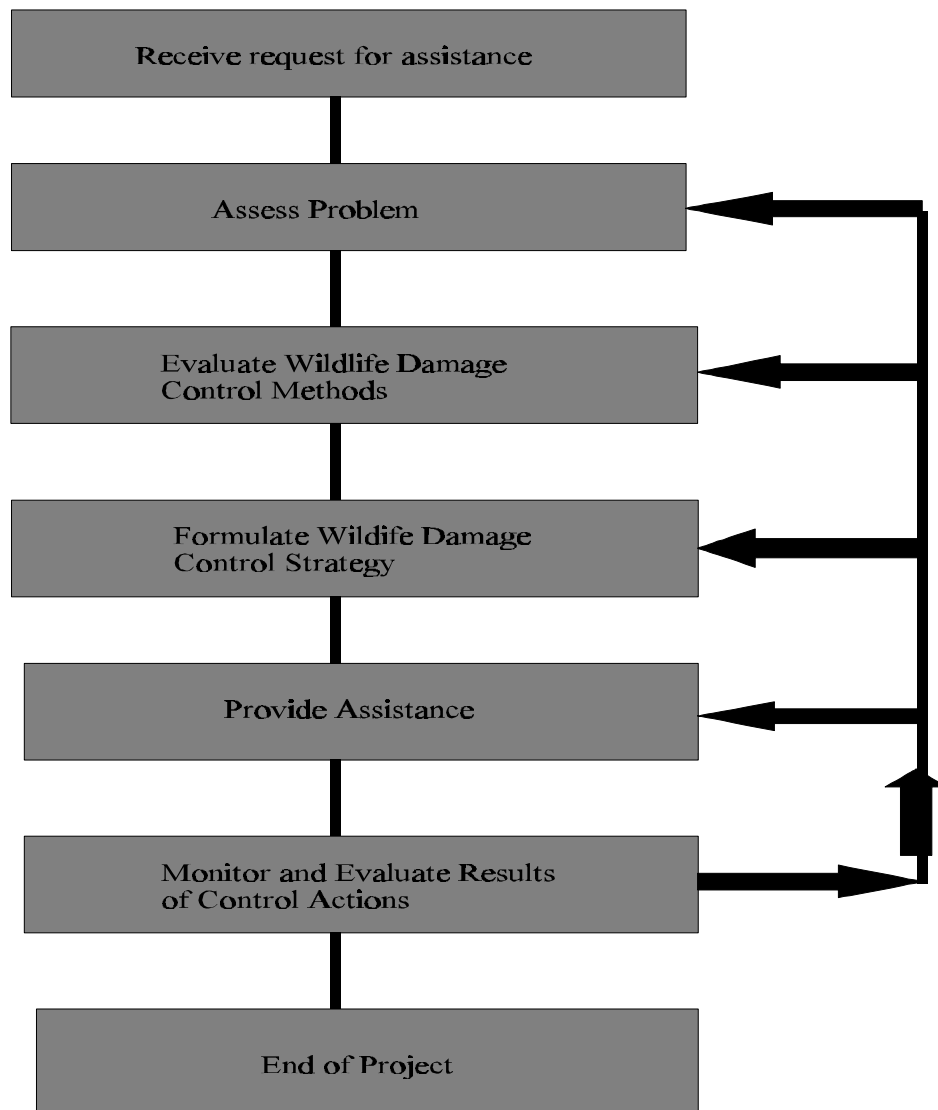
APPENDIX 3

WS Decision Model

APPENDIX 3

WILDLIFE SERVICES DECISION MODEL

The decision making process must be predicated on consideration of the specific biologic, sociocultural, economic, physical, and other environmental circumstances associated with a given wildlife damage problem.



APHIS ADC Decision Model

(USDA-APHIS-ADC Programmatic EIS, Chapter 2)

APHIS ADC personnel receive requests for assistance that encompass the broad range of wildlife damage problems. Some requests are relatively simple with straightforward solutions. Excluding squirrels from bird feeders or raccoons from chimneys represent typical examples. Requests for assistance to protect endangered species or human safety at air-ports are examples of more challenging problems in which a high level of interest is shown by various groups, organizations, and agencies. Unlike the previous squirrel and raccoon examples, the formulation, implementation, and success of an IPM strategy is frequently contingent on highly coordinated and cooperative efforts with many parties.

Each request for assistance is unique regardless of its complexity. Therefore, the decision-making process must be predicated on consideration of the specific biologic, sociocultural, economic, physical, and other environmental circumstances associated with a given wildlife damage problem. Ideally, a variety of methods should be available for the decision-maker to formulate an effective IPM strategy (Table 2-4). Access to a variety of methods allows field personnel greater flexibility and a better opportunity to formulate an effective strategy for each specific request for assistance.

The decision-making steps APHIS ADC personnel take are fundamentally the same as those described in Chapter 1 for other professionals (Figure 1-1). The APHIS ADC decision model presented in Figure 2-4 is a more detailed version of the general professional action model (Figure 1-1) that was specifically developed to depict the APHIS ADC decision process. The compartment entitled “Evaluate Wildlife Damage Control Methods” from the APHIS ADC decision model (Figure 2-4) has been expanded to show the important factors given consideration at this step (Figure 2-5). The APHIS ADC decision model can be applied to the other program alternatives. Control methods selected under each alternative could be screened and evaluated leaving the wildlife manager with the best solution under the constraints of the alternative. Some methods available for evaluation and consideration in the formulation of control strategies are listed in Table 2-4. Representative, detailed examples of types of requests for assistance received by the APHIS ADC program have been developed to further demonstrate some of the complexities of formulating effective IPM strategies (Appendix N). The reader is encouraged to refer to these specific examples to gain a better understanding of the APHIS ADC decision process.

All Federal actions are subject to NEPA (Public Law 91-190, 42 U.S.C. 4321 et seq.). APHIS ADC complies with CEQ regulations implementing NEPA (40 CFR 1500 et seq.) and the APHIS Implementing Guidelines (7 CFR 372) as part of the decision-making process. The relationship of the NEPA process to APHIS ADC decision-making is shown in Figure 2-6.

Wildlife damage decision models can be useful management tools (Schmidt et al. 1985). They can serve as meaningful communication instruments as well. The decision model presented in Figure 2-4 is designed to serve as both these functions; however, it necessarily oversimplifies complex thought processes.

Receive Request for Assistance

APHIS ADC is a service-oriented program that works on a request basis. Requests may be received by phone, in person, as referrals from others, or a variety of other means. Requests for assistance encompass a broad range of wildlife conflicts from nuisance wildlife in urban structures to more intricate problems, such as wildlife hazards to public safety, predation of livestock, or protection of endangered species.

Assess Problem

Each request undergoes an initial assessment to determine if the problem is within the purview of APHIS ADC. Requests determined to be within the purview of APHIS ADC are subjected to a detailed assessment of the damage.

Purview Determination

The diversity and scope of activities conducted by the APHIS ADC program is defined by Federal, State, and local laws, as well as MOUs and agreements. The purview of APHIS ADC varies among the 50 States in which the program is administered as a consequence of differences in State and local laws, MOUs, and agreements established with the APHIS ADC program in each State.

Most requests involving wildlife damage to agriculture, facilities and structures, or natural resources, or if wildlife pose a threat to public health and safety, result in APHIS ADC providing some type of wildlife damage management assistance. Requests to address problems that are clearly not within the responsibility or authority of the program in a State are usually referred to an appropriate source of assistance as a professional courtesy.

Detailed Assessment of Damage

In assessing the damage, immediate attention is given to confirming that damage was caused by vertebrate animals, the species responsible for damage, and the type of damage (e.g., bird hazard at an airport, loss of livestock, or flooded crops). Commonly this requires an inspection, depending on the type and complexity of the problem. Then severity of the problem is considered in deciding which management options are potentially applicable. During inspections, damages normally are confirmed by APHIS ADC personnel.

The extent and magnitude of damage is also important in assessing current and potential economic losses in the absence of control. The resource manager or affected party is usually the source of this type of information. Pertinent aspects of the damage history are also relevant. For example, is this a recurring problem or is it the first episode of this type? What control actions, if any, have been attempted by the resource manager or affected party? What were the results? If no further control action is taken, is damage likely to continue or recur?

Evaluate Wildlife Damage Control Methods

Once the problem assessment is completed, all available methods are evaluated for their practicality. Conceptually, this component of the APHIS ADC decision model consists of a series of legal, administrative, and environmental screens for each potential method (Figure 2-5). The result of this evaluation is one or more methods practical for further consideration in formulating alternative wildlife damage control strategies (see - "Formulate Wildlife Damage Control Strategy" on p. 2-32).

A list of control methods for the 17 representative target species (analyzed in detail in Chapter 4) is provided in Table 2-4. To facilitate an understanding of the relative availability of control methods and who generally applies them, methods are organized under three action approaches to managing wildlife damage problems (Table 2-4).

One action approach is management of the resources susceptible to damage. It includes those activities designed to improve or modify current resource management practices, such as husbandry and cultural practices, as well as modification of human behavior. Application of these methods typically is the responsibility of the resource manager or affected party. However, APHIS ADC personnel make technical assistance recommendations - concerning these methods.

A second action approach is placement of physical barriers to separate the resource that has sustained or is susceptible to damage from specific wildlife species. Fences, nets, and wire grids are examples of physical barrier methods. Like resource management methods, these are usually applied by the resource manager or affected party. APHIS ADC often makes technical assistance recommendations concerning the installation and improvement of physical barrier methods to reduce wildlife damage. APHIS ADC may also loan materials or demonstrate fencing or other physical exclusion methods.

A third approach, management of wildlife, includes habitat management, modification of wildlife behavior, and wildlife population management to reduce damage. Habitat management includes activities such as thinning trees from bird roosts or water level manipulation through removal of beaver dams, and is normally implemented by the resource manager or affected party. Modification of wildlife behavior includes the use of frightening devices, repellents, or lure crops. Population management includes translocation or lethal removal of wildlife from local populations. Behavior and population management methods may be conducted by either the resource manager, APHIS ADC personnel, or other wildlife damage control professionals, depending on legal and administrative considerations in each locale.

Legal and Administrative Considerations

Wildlife damage control methods are subject to legal and administrative authorities. For example, a method may be legal in one State and not another. Or, a method may be legal only in portions of a State (e.g., not allowed in heavily populated areas). The status of the target species (State or federally listed as threatened or endangered), or the presence of listed species in the general area where control activities are proposed, may preclude the use of a method. The species may be a migratory bird, requiring a depredation permit in order to implement specific types of control actions. Also, the APHIS ADC program itself may restrict the use of specific methods by policy or agreement with other agencies or parties. Important questions that should be considered for each method during this phase of the assessment include:

- Is it legal, and administratively permissible to use the method on this species within the State where the request for assistance has been received?
- Is it legal, and administratively permissible to use the method to address this specific type of damage?
- If so, is it legal, and administratively permissible to use this method at the specific site for this request for assistance, or are there restrictions because of land class, other land use patterns, or the presence of listed species near the damage site?

All of the methods that pass these legal and administrative screens are available for further consideration in the decision process. It should be noted, however, that there are additional legal considerations with regard to who may apply (resource manager or affected party, APHIS ADC personnel, or others with expertise in wildlife damage management) methods considered under “Formulate Wildlife Damage Control Strategy” (see p. 2-32)

Environmental Considerations

During this phase of the assessment, each legally and administratively available method is evaluated with regard to pertinent aspects of the biological, physical, sociocultural, and economic environments. A general question to be considered is: What are the positive or negative short- or long-term direct, indirect, or cumulative environmental effects of implementing or not implementing control action with the method? Other important questions that should be considered in making decisions about each method are listed below.

Biological Environment

- What is the population status of the target species? Is it endangered or threatened; or is it relatively abundant?
- Are there any threatened or endangered or other potential non-target species in the area that could be affected either directly or indirectly in a positive or negative fashion by using the method?
- Are there any special behavioral traits of the target species, such as daily or seasonal movement patterns, that require consideration?
- Could the use of the method potentially affect biological diversity?

Physical Environment

- What effect would local weather or climatic patterns have on the use of the method?
- What effect would soil, water, air, elevation, or other physical habitat features have on the use of the method?
- What effect would the method have on soil, water, and air quality?
- What health and safety risks would the method pose to the applicator and the public?
- What health and safety risks would be posed to the public by not conducting control using the method?

Economic Environment

- Would the use of the method in this situation be likely to reduce damage?
- Does the magnitude of damage warrant the cost of applying the method?

Sociocultural Environment

Evaluating methods in the sociocultural environment frequently presents the greatest challenge because of differences in human attitudes toward wildlife species (Kellert 1976; Decker and Goff 1987), wildlife damage management methods (Stuby et al. 1979; Arthur 1981), and the resources damaged by wildlife (Connolly 1982). In spite of the difficulties associated with evaluating methods in the sociocultural environment, societal values are important in decision-making and they deserve similar consideration in methods evaluation as the other environmental factors. Some important sociocultural issues to consider in evaluating wildlife damage control methods include:

- What are the perceptions regarding the humaneness of the method?
- How acceptable would the risks of this method to non-target animals be to the resource manager or affected party and the general public?
- How acceptable is the effect of each method on the target animal—no effect, frighten, exclude, modify habitat, translocate, or kill—to the resource manager or affected party and the general public?

The methods evaluation should result in one or more methods available for further consideration in formulating a control strategy (Figure 2-5). However, as a function of this evaluation it is possible to determine that there are no practical methods available. This results in no action being recommended or taken.

Formulate Wildlife Damage Control Strategy

At this decision step, those control methods determined to be practical from the previous evaluation are formulated into a control strategy for the specific problem. In determining the sequence or combination of methods to be applied and who will apply them, preference is given to practical non-lethal methods. However, this does not mean that non-lethal methods must always be applied as a first response to each damage problem.

Often the most appropriate response is a combination of non-lethal and lethal methods, and there will be instances where application of lethal methods alone is the most appropriate strategy.

Strategy Considerations

Available Expertise

As previously discussed, some control methods are usually applied by the resource manager or affected party. Other methods can be used by resource managers or other professional wildlife damage control personnel, and still others may only be applied by APHIS ADC personnel.

The availability of expertise to address each specific request for assistance may influence the balance of technical assistance and direct control activities when formulating the IPM strategy. Relatively simple damage problems may be adequately addressed through technical assistance. However, effective solutions to many damage problems require an integration of those methods used by the resource manager with direct control services provided by the APHIS ADC program or other professional wildlife damage managers. The availability of APHIS ADC expertise for direct control to address complex damage problems is dependent on cooperative or congressionally directed funding. Cooperators are generally more inclined to provide funding for problems requiring special expertise than for those problems they can either solve on their own or through technical assistance. In addition, Federal and State legislators are more likely to appropriate public funds to solve problems requiring special equipment, materials, and expertise.

Legal Constraints on Method Users

Screening was previously performed (see “Legal and Administrative Considerations” on p. 2-30) to determine which methods were legally and administratively permissible for this problem. It is necessary here to consider any additional legal constraints on methods that define who may apply each method. The avicide DRC 1339, for example, can be used only by USDA personnel trained in bird damage control or persons under their direct supervision. Use of the livestock protection (LP) collar is restricted to specially trained and certified LP collar applicators who may be APHIS ADC employees (see Appendix Q).

Cost

Cost effectiveness is an obvious goal in wildlife damage management. However, the costs of implementing wildlife damage management cannot be considered independently from the damage problem, probable environmental impacts, and other strategy considerations.

The costs of methods and their application should be weighed against the severity of damage. Even in cases involving serious damage, lack of funds may constrain the resource manager or affected party from hiring special expertise adequate to solve the problem.

In relatively simple wildlife damage problems, such as excluding squirrels or raccoons from urban structures, the provision of technical assistance is usually sufficient and the least costly means of providing a solution. Difficult wildlife damage problems are usually not as easily or effectively resolved through technical assistance alone. For example, a livestock producer who is using all practical, state-of-the-art resource management and physical barrier methods may also require direct control assistance to successfully constrain continuing losses. In this scenario, the monetary costs for implementing an IPM strategy include both the costs of direct control applied by APHIS ADC and the costs incurred by the resource manager for implementing resource management and physical barrier methods.

Off-site or indirect benefits have to be considered as well. For example, the costs associated with the suppression of an offending coyote population at one location may be relatively high. But when costs are considered in the context of the benefit of avoided or continuing loss of sheep in neighboring areas, the costs of implementing the control strategy may be low.

Overriding social concerns often preclude the use of the most cost-effective methods. The use of pyrotechnic frightening devices in and around developed areas to reduce damage caused by birds may not be recommended or used because of noise, aesthetic, or other social concerns. Safe and effective lethal methods may not be used in a variety of circumstances primarily because of social considerations.

Short- and long-term costs and benefits of wildlife damage management strategies also are important. Methods such as the propane cannon have substantially higher initial costs in comparison to pyrotechnics, yet may be less expensive when labor is factored into the strategy budget.

Relative Effectiveness of Methods

Subject to other constraints and considerations previously discussed, APHIS ADC personnel attempt to recommend the most effective method or combination of methods to resolve problems. Effectiveness of a method or combination of methods must take into account the variables previously discussed, such as legal and administrative availability and practicality, as well as their monetary costs, negative environmental impacts, and most importantly their ability to reduce damage. Ideally, a method or combination of methods should be selected that produces maximum damage resolution with minimal negative environmental impacts (Owens and Slate 1991).

Provide Assistance

APHIS ADC program service is delivered to the public by two basic means: technical assistance and direct control. Technical assistance is the provision of advice, recommendations, information, or materials for use in managing wildlife damage problems. Its emphasis is on helping others help themselves. Technical assistance may require substantial effort by APHIS ADC personnel in the decision-making process, but the actual control activities are the responsibility of the resource manager or affected party. Direct control is the implementation of control activities by APHIS ADC personnel in the field. Direct control is typically provided when funding is available and technical assistance alone is inadequate (see p. 2-17 through 2-20 for a more comprehensive description of technical assistance and direct control). Direct control by APHIS ADC or other appropriately trained wildlife personnel should be employed when actions may affect sensitive species or sensitive areas of the public domain or involve certain hazardous materials (Berryman 1972).

Monitor and Evaluate Results of Control Actions

If control measures have been provided by APHIS ADC, it is usually necessary to monitor control actions to determine if they are achieving the desired results. Return site visits or telephone contacts with the resource manager represent the most common forms of monitoring conducted by APHIS ADC personnel. Site visits or phone contacts are also required to monitor equipment placed in the field by APHIS ADC personnel to assess if it is functioning properly, or to determine if any animals have been captured.

Monitoring control actions is an important step in determining if further assistance is required to responsibly address the problem. Monitoring also allows APHIS ADC personnel to know when to discontinue control activities, thus reducing unnecessary environmental impacts and monetary expenditures.

The need for additional assistance is usually identified through routine monitoring and evaluation of control actions by APHIS ADC personnel. If the recommended strategy is having an effect but damage has not abated,

continuation of the strategy or reevaluation may be in order, as represented by the feedback loop shown in Figure 2-4.

End of Project

A project is considered completed for APHIS ADC whenever program personnel are no longer directly involved in control activity for that specific problem. For many projects that are addressed through technical assistance alone, APHIS ADC involvement in the project ends when the recommendations or advice is provided to those making the request. Some direct control projects, such as the removal of a single family of beaver and the - associated dams responsible for flooding a road or dispersing blackbirds from an urban roost, have well-defined end points. Other projects, such as chronic predation on livestock or at aquaculture facilities, may require continuing attention at various times of the year. These types of projects have no well-defined end points.



APPENDIX 4

Section 7 Consultation



United States Department of the Interior

FISH AND WILDLIFE SERVICE
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JUL 27 2001

Roger Woodruff
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(FWS Reference: 1-3-01-I-1738)

Dear Mr. Woodruff:

This letter is in response to your letter, dated May 25, 2001, and received in our office on May 30, 2001, and the agency draft Environmental Assessment of alternative strategies for the management of damage caused by migratory birds in the State of Washington, dated June 26, 2001, and received in our office on July 19, 2001. You have requested concurrence with your determination that management actions to control depredating birds in Washington may affect, but are not likely to adversely affect, the bald eagle (*Haliaeetus leucocephalus*), brown pelican (*Pelicanus occidentalis*), marbled murrelet (*Brachyramphus marmoratus*), northern spotted owl (*Strix occidentalis caurina*), and western snowy plover (*Charadrius alexandrinus nivosus*), in accordance with Section 7(a)(2) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

The U.S. Fish and Wildlife Service (FWS) concurs that implementation of the proposed project is not likely to adversely affect the bald eagle, brown pelican, marbled murrelet, northern spotted owl, and western snowy plover. This concurrence is based on information provided in your letter and in the Environmental Assessment, and anticipated strict compliance with FDA label requirements for the capture drug AC and the pesticide DRC-1339.

In addition, the Upper Midwest Environmental Sciences Center is currently conducting a multiyear study, through 2002, on the exposure of nontarget birds to DRC-1339 in response to the FWS's concern about the potential loss of nontarget migratory birds to this pesticide, particularly adjacent to FWS lands. Consequently, we recommend that, if DRC-1339 will be used adjacent to any National Wildlife Refuges in Washington, refuge managers be notified prior to its use.

This concludes informal consultation pursuant to 50 CFR 402.13. The project should be reanalyzed if new information reveals effects of the action that may affect listed species or critical habitat in a manner, or to an extent, not considered in this consultation. The project

should also be reanalyzed if the action is subsequently modified in a manner that causes an effect to a listed species or critical habitat that was not considered in this consultation, and/or a new species is listed or critical habitat is designated that may be affected by this project.

Although the Western Washington Office has addressed the consultation requirements for the entire state in this letter, future consultations should be addressed to both the Western Washington Office and the Upper Columbia Fish and Wildlife Office in Spokane. The address is Susan Martin, Manager, 11103 E. Montgomery Drive, Spokane, WA 99206. Early initiation of the consultation process will facilitate our review and will be essential to plan for adequate review by both offices.

If you have further questions about this letter or your responsibilities under the Act, please contact Dr. L. Karolee Owens at (360) 753-4369.

Sincerely,

A handwritten signature in black ink, appearing to read "Ken S. Berg".

Ken S. Berg, Manager

Western Washington Office

cc: WDFW all regions

Spokane (Susan Martin, Linda Hallock)



JUL 24 2001

State of Washington
DEPARTMENT OF FISH AND WILDLIFE

Mailing Address: 600 Capitol Way N • Olympia, WA 98501-1091 • (360) 902-2200, TDD (360) 902-2207
Main Office Location: Natural Resources Building • 1111 Washington Street SE • Olympia, WA

July 20, 2001

Mr. Roger Woodruff
Assistant State Director WA/AK
USDA/APHIS/Wildlife Services
720 O'Leary Street Northwest
Olympia, Washington 98502

Dear Mr. Woodruff:

This letter is in response to your request for an informal consultation and concurrence of findings for listed and proposed threatened and endangered species that may be present within Washington State. You analyzed the potential impact of the program alternatives proposed in the Wildlife Services' Agency Draft Environmental Assessment (EA) of Alternative Strategies for the management of damage caused by migratory birds in the State of Washington. The draft EA evaluates methods to resolve conflicts with migratory birds including gulls, cormorants, waterfowl, hawks and falcons, owls (great horned and barn), house finches, northern flickers, herons, swallows, and American robins in Washington state.

Federally listed species that may occur in the project areas include the bald eagle, brown pelican, marbled murrelet, northern spotted owl, and western snowy plover. Other state listed species include the American white pelican, Aleutian Canada goose, ferruginous hawk, peregrine falcon, sage grouse, sharp-tailed grouse, sandhill crane, and the upland sandpiper.

Based on information contained in the draft EA, the Department concurs with your determination-that the proposed project, as described, is-not-likely to adversely affect the following endangered and threatened species: bald eagle, brown pelican, marbled murrelet, northern spotted owl, western snowy plover, American white pelican, Aleutian Canada goose, ferruginous hawk, peregrine falcon, sage grouse, sharp-tailed grouse, sandhill crane, and upland sandpiper.

Thank you for the opportunity to consult with you on possible effects of the proposed project on listed species in Washington.

Sincerely,

Harriet Allen, Manager
Threatened and Endangered Species Section

HA:tl



United States
Department
of Agriculture

Animal
and Plant
Health
Inspection
Service

Wildlife
Services

720 O'Leary St., NW
Olympia, WA 98502

May 25, 2001

Ken Berg
Manager, Western Washington Office
U. S. Fish & Wildlife Service
510 Desmond Drive SE, Suite 102
Lacey, WA 98501

Dear Mr. Berg

The purpose of this letter is to request an informal consultation and concurrence of findings pursuant to Section 7 of the Endangered Species Act for listed and proposed threatened and endangered species, candidate species, and species of concern that may be present in Washington. Based on a review of the listings provided by your office, I have analyzed the potential impact of the program alternatives proposed in the Wildlife Services' Environmental Assessment (EA) for the management of damage caused by migratory birds in Washington.

Project Area

This EA evaluates alternative methods to resolve conflicts with migratory birds that include, but are not necessarily limited to: gulls [California (*Larus californicus*), glaucous-winged (*L. glaucescens*), herring (*L. argentatus*), and ring-billed (*L. delawarensis*)]; cormorants (*Phalacrocorax* species); waterfowl (*Anatidae* family); hawks and falcons (*Accipitridae* and *Falconidae* families); owls [great horned (*Bubo virginianus*) and barn (*Tyto alba*)]; house finches (*Carpodacus mexicanus*); northern flickers (*Colaptes auratus*); herons (*Ardeidae* family); swallows (*Hirundinidae* family); and American robins (*Turdus migratorius*) in Washington State

Threatened and Endangered Species

The bald eagle (*Haliaeetus leucocephalus*), brown pelican (*Pelecanus occidentalis*), marbled murrelet (*Brachyramphus marmoratus*), northern spotted owl (*Strix occidentalis caurina*), and western snowy plover (*Charadrius alexandrinus nivosus*) may occur in project areas.

Proposed Threatened and Endangered Species

None

Proposed Action and Methods

The proposed action would include WS direct control and technical assistance applied on a case-by-case basis to use the most appropriate, effective and biologically sound methods available. This approach is known as Integrated Wildlife Damage Management and is analyzed and discussed in Chapter 1, 1-7 of the Animal Damage Control Program, Final Environmental Impact Statement (USDA 1997). Direct control conducted by WS may include harassment, exclusion, cage traps, capture and relocation, capture and euthanasia, and shooting. The capture drug, alpha chloralose (AC), and the avicide, DRC-1339, may also be used.



APHIS - Protecting American Agriculture

Findings

Upon careful review, I have determined that the proposed project would have little or no effect on listed threatened and endangered species, candidate species, and species of concern. Capture and removal methods would allow for positive identification of target animals. The listed species are easily distinguishable from depredating birds, as defined, and only rarely occur in the environments where project activities would be likely to occur. The capture drug, AC, would be used in accordance with FDA label requirements (copy attached). WS personnel are trained and certified in the use of AC. AC is administered by hand baiting, which allows for controlled delivery to target birds. Any uneaten baits are gathered and removed. No secondary impacts of the drug to predatory or scavenging species such as bald eagles are expected, because drugged birds are captured and removed. The pesticide, DRC-1339, would be used in accordance with EPA label requirements (copy of label attached). Baits are not applied in areas accessible to threatened and endangered species or other non-target wildlife, and bait consumption is visually monitored to reduce risk to non-target animals. Any uneaten baits are removed. The risk of secondary hazards to predatory or scavenging wildlife are extremely low. The 1992 USDI Biological Opinion regarding USDA-ADC program activities determined danger to raptors or mammalian carnivores that might eat DRC-1339 poisoned birds was minimal (Appendix P, USDA 1997). WS personnel are trained in the use of pesticides and are certified by the Washington Department of Agriculture. Unattended scare devices, such as gas operated exploders, could unintentionally frighten a listed species. However, such occurrences would be extremely rare and there would be no physical or long term behavioral consequences.

Based on these findings, this project is not likely to adversely affect the behavior or biology of any listed threatened and endangered species, candidate species, or species of concern. We seek your concurrence with our determination.

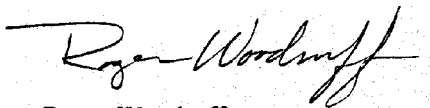
Sincerely,

Roger Woodruff
Assistant State Director WA/AK
USDA/APHIS/Wildlife Services

Literature cited:

USDA, APHIS, ADC. 1995. ADC Program Final EIS. 3 Volumes. Washington, D.C.

Encl.

A handwritten signature in black ink, reading "Roger Woodruff". The signature is written in a cursive style with a large, stylized "R" and "W".



United States
Department
of Agriculture

Animal
and Plant
Health
Inspection
Service

Wildlife
Services

720 O'Leary St., NW
Olympia, WA 98502

May 25, 2001

Harriet Allen, Manager Endangered Species Section
Washington Department of Fish and Wildlife
600 Capitol Way North
Olympia, WA 98501-1091

Dear Ms. Allen,

The purpose of this letter is to request an informal consultation and concurrence of findings for listed and proposed threatened and endangered species that may be present within Washington State. Based on a review of the listings provided by your office, I have analyzed the potential impact of the program alternatives proposed in the Wildlife Services' Environmental Assessment (EA) for the management of damage caused by migratory birds in Washington.

Project Area

This EA evaluates alternative methods to resolve conflicts with migratory birds that include, but are not necessarily limited to: gulls [California (*Larus californicus*), glaucous-winged (*L. glaucescens*), herring (*L. argentatus*), and ring-billed (*L. delawarensis*)]; cormorants (*Phalacrocorax* species); waterfowl (*Anatidae* family); hawks and falcons (*Accipitridae* and *Falconidae* families); owls [great horned (*Bubo virginianus*) and barn (*Tyto alba*)]; house finches (*Carpodacus mexicanus*); northern flickers (*Colaptes auratus*); herons (*Ardeidae* family); swallows (*Hirundinidae* family); and American robins (*Turdus migratorius*) in Washington State.

Federally Listed

The bald eagle (*Haliaeetus leucocephalus*), brown pelican (*Pelecanus occidentalis*), marbled murrelet (*Brachyramphus marmoratus*), northern spotted owl (*Strix occidentalis caurina*), and western snowy plover (*Charadrius alexandrinus nivosus*) may occur in project areas.

State Listed

The Washington Department of Fish and Wildlife designates eight additional threatened or endangered species which WS has determined to deserve consideration relative to our proposed action. They include: the American white pelican (*Pelecanus erythrorhynchos*), Aleutian Canada goose (*Branta canadensis leucopareia*), ferruginous hawk (*Buteo regalis*), peregrine falcon (*Falco peregrinus*), sage grouse (*Centrocercus urophasianus*), sharp-tailed grouse (*Tympanuchus phasianellus*), sandhill crane (*Grus canadensis*), and the upland sandpiper (*Bartramia longicauda*).

Proposed Action and Methods

The proposed action would include WS direct control and technical assistance applied on a case-by-case basis to use the most appropriate, effective and biologically sound methods available. This approach is known as Integrated Wildlife Damage Management and is analyzed and discussed in Chapter 1, 1-7 of the Animal Damage Control Program, Final Environmental Impact Statement (USDA 1997). Direct control conducted by WS may include harassment, exclusion, cage traps, capture and relocation, capture and euthanasia, and shooting. The capture drug, alpha chloralose (AC), and the avicide, DRC-1339, may also be used.

Findings

Upon careful review, I have determined that the proposed project would have little or no effect on listed threatened and endangered species, candidate species, and species of concern. Capture and removal methods would allow for positive

identification of target animals. The listed species are easily distinguishable from depredating birds, as defined, and only rarely occur in the environments where project activities would be likely to occur. The capture drug, AC, would be used in accordance with FDA label requirements (copy attached). WS personnel are trained and certified in the use of AC. AC is administered by hand baiting, which allows for controlled delivery to target birds. Any uneaten baits are gathered and removed. No secondary impacts of the drug to predatory or scavenging species such as bald eagles are expected, because drugged birds are captured and removed. The pesticide, DRC-1339, would be used in accordance with EPA label requirements (copy of label attached). Baits are not applied in areas accessible to threatened and endangered species or other non-target wildlife, and bait consumption is visually monitored to reduce risk to non-target animals. Any uneaten baits are removed. The risk of secondary hazards to predatory or scavenging wildlife are extremely low. The 1992 USDI Biological Opinion regarding USDA-ADC program activities determined danger to raptors or mammalian carnivores that might eat DRC-1339 poisoned birds was minimal (Appendix P, USDA 1997). WS personnel are trained in the use of pesticides and are certified by the Washington Department of Agriculture. Unattended scare devices, such as gas operated exploders, could unintentionally frighten a listed species. However, such occurrences would be extremely rare and there would be no physical or long term behavioral consequences.

Based on these findings, this project is not likely to adversely affect the behavior or biology of any listed threatened and endangered species. We seek your concurrence with our determination.

Thank you for your consideration of this request.

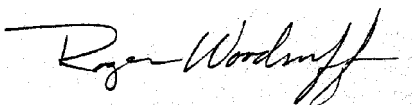
Sincerely,

Roger A. Woodruff
Assistant State Director WA/AK
USDA/APHIS/Wildlife Services

Literature cited:

USDA, APHIS, ADC. 1995. ADC Program Final EIS. 3 Volumes. Washington, D.C.

Encl.

A handwritten signature in black ink, reading "Roger Woodruff". The signature is written in a cursive, flowing style. Below the signature, there are several horizontal dashed lines, likely for a signature line or to indicate where a stamp should be placed.

APPENDIX 5

Pesticide Labels

DRC-1339 CONCENTRATE - GULL Label
ALPHA-CHLORALOSE Label

Decision and Finding of No Significant Impact

Alternative Strategies for the Management of Damage Caused by Migratory Birds
in the State of Washington

USDA-APHIS-WS

October, 2001

Decision and Finding of No Significant Impact
Alternative Strategies for the Management of Damage Caused by Migratory Birds
in the State of Washington

1. Introduction

The United States Department of Agriculture, Animal and Plant Health Inspection Service (USDA-APHIS), Wildlife Services (WS) works cooperatively with Federal, state, and local governments, public and private organizations and individuals to reduce wildlife caused damage and conflicts. WS's authority comes from the Animal Damage Control Act of March 2, 1931, as amended, and pursuant to the Rural Development, Agriculture, and Related Agencies Appropriations Act of 1988. WS completed an Environmental Assessment (EA) on September 14, 2001 for the State of Washington. The EA analyzed potential impacts of a proposed program and alternatives to manage conflicts associated with migratory birds.

WS' **Proposed Action** is to continue the present migratory bird damage management program in Washington State (Current Program Alternative) in order to provide assistance to a diversity of requesters which may include Federal, State, and Local government agencies; industry; other businesses, or individuals; and to cooperate with appropriate land and wildlife management agencies to seek resolution involving migratory bird damage related to agriculture, property, human health and safety, and natural resources.

2. Public Involvement

Solicitation for Input, Information, and Issues:

WS used the information gathered from agency personnel, the United States Fish and Wildlife Service (USFWS), Federal Aviation Administration (FAA), Washington Department of Fish and Wildlife (WDFW), National Agricultural Statistics Service (NASS), Washington State Department of Agriculture (WSDA) and the public in preparing this document. Public input was obtained through written comments provided in response to a public involvement letter. Three hundred and five public involvement letters were sent to state, federal, county, and municipal agencies, businesses, environmental groups, animal welfare and animal rights organizations, and individuals. The public involvement letter invited information concerning the issues and alternatives involving bird damage caused by the species addressed in this EA. Two letters were received in response to the invitations.

A Predecisional Document for Public Review was prepared and released to the public for a 30-day comment period on July 27, 2001. Fifty-seven letters were received in response to this document, eight of which were received after the 30-day comment period. Forty-seven of the responses were "form" letters. Only two of the fifty-seven commenters had requested copies of the Pre-decisional EA. The issues and alternatives identified throughout the public involvement process have been considered in the final document. None of the public comments on the predecisional EA brought up substantive new issues or alternatives, or new information that would change the analysis. A summary of the public comments along with WS' responses is attached.

Public notice of Availability:

Legal notices of availability were placed in; *The Seattle Times*, *The Wenatchee World*, *The Tri-City Herald*, *The Columbian* and *The Spokesman Review* to solicit input on the pre-decisional EA.

Agency Review:

Agency input was used throughout the process. A preliminary draft of the EA and the Predecisional Document for Public Review were presented to the consulting agencies (USFWS, FAA, WDFW, and WSDA) for interagency review and comment.

3. Background

Decision and Finding of No Significant Impact
Alternative Strategies for the Management of Damage Caused by Migratory Birds
in the State of Washington

WS in Washington State has been requested by individuals, businesses, municipalities, counties, and state and federal agencies to assist in the alleviation of problems caused by depredating birds.

These problems include:

- threats to human health and safety involving; bird strikes with aircraft, disease transmission, food contamination, noise disturbance, and accumulation of fecal material.
- damage to Washington's agriculture including; crop damage, disease transmission to livestock, predation, and feed losses.
- damage to property involving; fecal contamination, structural damage, and landfill operations.
- damage to natural resources that may involve; the protection of sensitive, threatened, or endangered species.

4. Alternatives

The following alternative courses of action were developed with input from the consulting agencies and the public.

Alternative 1: Current Program Alternative (Proposed Action)

Alternative 1 is the "No Action" Alternative. This alternative is a continuation of the current program, an integrated wildlife damage management approach. The "No Action" Alternative is a procedural NEPA requirement (40 CFR 1502.14(d)).

The summary of impacts of this alternative is discussed below under Section 6. Decision and Rationale.

Alternative 2: Non-lethal and Technical Assistance Only Alternative

Alternative 2 would discontinue any lethal direct control of migratory birds by WS, except in emergency situations involving human health and safety. If lethal direct control were used in other situations, it would be employed by persons or programs other than WS. Both non-lethal direct control and technical assistance as described in 2.1 would continue to be provided by WS. Requests for lethal direct control would likely be referred to other wildlife management agencies. The WDFW would not accept the sole responsibility for lethal removal or capture and euthanizing of migratory birds (WDFW₁, pers. comm.).

Alternative 3: Lethal Control Only Alternative

Alternative 3 would discontinue any non-lethal control of migratory birds by WS. Non-lethal control would be employed by persons or programs other than WS. Technical assistance would be provided, but the implementation of non-lethal methods would be the responsibility of the cooperator.

Alternative 4: Non-lethal Methods First Alternative

Alternative 4 differs from the Current Program in that the Current Program recognizes non-lethal methods as an important dimension of IWDM, gives them first consideration in the formulation of each control strategy, and recommends or uses them when practical before recommending or using lethal methods. In contrast, Alternative 4 would require that all non-lethal methods be implemented regardless of practicality before any lethal methods are recommended or used.

Alternative 5: No Federal Program Alternative

Alternative 5 would consist of no direct control or technical assistance offered or employed by WS. Under this alternative, wildlife damage conflicts would be handled by private resource owners and

Decision and Finding of No Significant Impact
Alternative Strategies for the Management of Damage Caused by Migratory Birds
in the State of Washington

managers, private contractors, and/or other government agencies, and is discussed in detail in the USDA-APHIS-ADC Programmatic EIS (1997, revised).

5. Issues

The following migratory bird management issues were identified during the interagency and public involvement processes. These issues were determined to be important and were used to drive the environmental analysis.

1. Effectiveness of control measures in reducing or minimizing damage.
2. Impact of control methods on non-target, including Threatened and Endangered species.
3. Impact on the population of migratory birds (target species).
4. Humaneness of control methods. Humaneness is a person's perception of the impact of an action on animal pain and suffering, and individuals may perceive the humaneness of an action differently.
5. Aesthetics of migratory birds and the damage they cause.

6. Decision and Rationale

After carefully reviewing the EA, I believe that the need for action and issues identified in the EA are best addressed by implementing the Current Program Alternative (No Action). The EA analyzed five alternatives to address migratory bird damage management in Washington State: a continuation of the Current Program; a Non-lethal and Technical Assistance Only Alternative; a Lethal Control Only Alternative, a Non-lethal Methods First Alternative; and a No Federal Program Alternative.

The Current Program Alternative allows WS to provide both technical assistance and direct control services including both non-lethal and lethal management approaches. It allows the use of practical and effective methods of preventing or controlling damage while minimizing harmful effects of control measures on humans, other species and the environment. Non-lethal methods would be given first consideration in the formulation of each damage management strategy, and would be recommended or implemented when practical and effective before recommending or implementing lethal methods. All wildlife damage management activities will be conducted in a manner consistent with all applicable environmental regulations and agency policies.

Environmental Consequences:

Humaneness: The Proposed Action employs the most humane methods available that are also practical and effective. Lethal control will be used under this alternative, which may be seen as inhumane by some people. Some people view the capture and killing of birds as inhumane, regardless of the methods used.

Impacts on non-target, threatened and endangered species: Lethal control methods proposed are highly target selective. The USFWS has concurred that the Proposed Action is not likely to

adversely affect Federally listed species, including the bald eagle, brown pelican, marbled murrelet, northern spotted owl, and western snowy plover.

Impacts on target species: The Proposed Action will be likely to reduce localized numbers of birds. However, there will be no significant impact on the state, regional, or national population level.

Decision and Finding of No Significant Impact
Alternative Strategies for the Management of Damage Caused by Migratory Birds
in the State of Washington

Program impacts on aesthetics of migratory birds and the damage they cause: There will continue to be ample migratory bird viewing opportunities. Aesthetic values are subjective, but presumably, fewer damage problems with birds will increase their aesthetic appeal for many people.

Program Effectiveness: The Current Program is considered to be the most effective of the alternatives in reducing damages. The Current Program will allow WS to most effectively assist the public in resolving damage problems with migratory birds in Washington State.

Cumulative Impacts: The Current Program will not contribute to significant cumulative impacts on migratory bird populations in Washington State. WS activities will be monitored, and WS will coordinate their activities with WDFW and USFWS. USFWS and WDFW concur that the Proposed Action will not significantly impact migratory bird populations.

7. Compliance and Monitoring

WS will continue to formulate a joint strategy for program monitoring, data collection and analysis with WDFW and the USFWS. WS' activity will be monitored via periodic coordination contacts with those cooperating agencies. WS will work within management objectives set by USFWS and WDFW. WS will continue to record all activities in its Management Information System database. WS plans to review this EA annually to ensure that the EA is consistent with all state and Federal agency management plans, guidelines, and environmental regulations or policies, and that program impacts are properly reflected in the analysis. Should any changes occur that could substantially alter the analysis and Decision, WS would revise the EA and Decision appropriately. Substantial changes in the scope of this project, new substantive issues or reasonable alternatives, or changes in the guidance documents or environmental regulations could trigger the need for additional analysis.

8. Site Specificity

Washington State was the area of analysis for this EA for the following reasons; the smallest area of authority of the consulting agencies (WDFW and USFWS) is statewide and the species involved are managed by State and Federal agencies. WS personnel use the WS Decision Model as a site specific tool at each location, and a smaller area of analysis would not change the overall analysis, add to the public's understanding of the proposal, or provide additional useful or relevant information to the decision-maker.

FINDING OF NO SIGNIFICANT IMPACT

A careful review of the Washington Wildlife Services EA indicates that there will not be a significant impact on the quality of the human environment as a result of this proposal. I agree with this conclusion, and therefore, determine that an Environmental Impact Statement (EIS) will not be prepared. This determination is based on consideration of the following factors:

1. Migratory bird damage management, as conducted by WS in the State of Washington, will occur in isolated or localized areas and only where a request for assistance is directed to Wildlife Services. The proposed activities are not national or regional in scope.
2. The methods used to control bird damage are highly target specific and are not likely to significantly affect public health and safety. The proposed program may benefit public health and safety by reducing the potential risks of bird/aircraft strikes, disease transmission to humans and livestock, injuries in the workplace caused by slipping on feces, and the transmission of pathogens to food processing facilities.
3. The proposed activities will not have an impact on unique characteristics of the geographic area such as historical or cultural resources, park lands, prime farmlands,

Decision and Finding of No Significant Impact
Alternative Strategies for the Management of Damage Caused by Migratory Birds
in the State of Washington

- wetlands, wild and scenic rivers, or ecological critical areas. The nature of the methods proposed for alleviating damages would not likely affect the physical environment.
4. The effects on the quality of the human environment of the proposed activities are not highly controversial. Although some people are opposed to some aspects of wildlife damage management, the methods and impacts are not controversial among experts.
 5. The possible effects of the proposed activities on the quality of the human environment are not highly uncertain and do not involve unique or unknown risks.
 6. The proposed activities do not establish a precedent for actions with future significant effects or represent a decision in principle about a future consideration.
 7. There are no significant cumulative effects identified by this assessment.
 8. The proposed activities will not affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places nor will it cause a loss or destruction of significant scientific, cultural, or historical resources. Wildlife Services activities in general, and migratory bird damage activities specifically, do not have the potential to significantly affect historic properties. WS has determined that the activities do not constitute a federal undertaking under Section 106 of the National Historic Preservation Act.
 9. The proposed activities will fully comply with the Endangered Species Act of 1973, as amended. Wildlife Services, in coordination with USFWS and WDFW determined that the proposed activities would not affect Federally listed threatened and endangered species.
 10. There are no irreversible or irretrievable resource commitments identified by this assessment, except for a minor consumption of fossil fuels for routine operations.
 11. The proposed activities will not threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment. The proposed activities do not violate the Migratory Bird Treaty Act, as administered by the USFWS. WS performs all work in coordination with the USFWS to assure compliance with the Act.

For additional information concerning this decision, please contact:

Roger A. Woodruff
USDA-APHIS-WS
720 O'Leary Street NW
Olympia, WA 98502

Decision and Finding of No Significant Impact
Alternative Strategies for the Management of Damage Caused by Migratory Birds
in the State of Washington

Approved By:

Mike Worthen
Western Region Director
USDA-APHIS- Wildlife Services

Date

APPENDIX A

Response to Comments

Appendix A

Response to Comments

to the

Environmental Assessment for the Alternative Strategies for the Management of Damage Caused by
Migratory Birds in the State of Washington

Wildlife Services (WS) received 2 comment letters in response to the Invitation for Public Involvement letter and 58 comment letters on the Pre-Decisional EA. All of the commenters expressed an opinion on the Proposed Action or on the topic of lethal control. Many of these comments were opposed to any alternative which incorporated the lethal control of migratory birds as an option.

Proper consideration must be given to all reasonable points of view, particularly as they may relate to the issues being considered. In this light, it is important to consider and address concerns or criticisms that may arise. Appendix A is a summary of comments received on the Pre-Decisional EA, with the corresponding WS responses.

Comment 1. The EA does not support the conclusion that Alternative 4 would be expected to be less effective than the Current Program. Program effectiveness is not quantified.

Alternative 4 would require that *all non-lethal methods be implemented regardless of practicality before any lethal methods are recommended or used* (Section 2.4). Constraints on flexibility and effectiveness imposed by the application of Alternative 4 reduces the ability of a program to address the full range of wildlife damage problems. Flexibility allows increased effectiveness. Although Section 3.1.1 states that the effectiveness of the program can be gauged in terms of reduced economic losses, both present and future, decreased health and safety hazards, and minimized property damage, the results may not be quantifiable. These factors are considered on a case-by-case basis through the use of the WS Decision Model. A detailed explanation of the step-by-step approach used by the WS Decision Model, as described in the APHIS-USDA-ADC Programmatic EIS (1997, revised), has been inserted into Appendix 3.

The intent of using the issue of program effectiveness is to have a relative comparison for evaluating the appropriateness of the alternatives against general program objectives. Effectiveness of a method, or combination of methods, is subject to environmental, legal, and administrative constraints and considerations, thus they are not quantitative. For example, the National Wildlife Research Center conducts research regarding the behavior of birds, the effectiveness of wildlife damage control methods, and many other topics related to the control of wildlife damage. This research is one basis for WS approaches to the control of wildlife damage.

Effectiveness can be defined by how well wildlife specialists identify the species causing a problem and then alleviate or reduce the damage to an acceptable level. The specialist must be able to complete wildlife damage management expeditiously, within limitations to minimize harm to non-target animals and the environment, and in the lawful use of each method, while at the same time using methods as humanely as possible within the limitations of current technology. Many of the details on effectiveness were discussed in the APHIS-USDA-ADC Programmatic EIS (1997, revised) where integrated wildlife damage management was concluded to be the most effective. The effectiveness of the proposed action alternative is rated as the highest of the alternatives, because it allows for the most options and flexibility to select a strategy that is the most effective after consideration and application of all variables and constraints.

An effective program requires that site specific consideration of the many variables listed below be given to allow the wildlife specialist to select and implement the most appropriate technique to resolve each unique damage situation. Flexibility in the management approach is important because of the high variability found in the natural environment. In selecting management techniques for specific damage situations, consideration must be given to such variables as: the magnitude of the threat of damage; the geographic extent of threat;

the time of year and life cycle of the depredating bird; the vulnerability of the resource to the depredating bird species; other land uses (such as proximity to residential areas); the feasibility of implementation of the various allowed techniques; the status of target species; the potential presence of non-target species (such as protected or endangered); local environmental conditions such as terrain, vegetation, and weather; the presence of people and their pets; the presence of attractants such as trash; the potential legal restrictions such as availability of tools or management methods; the humaneness of the available options; and the costs of control options (the cost of control in this proposal may be a secondary concern because of overriding environmental and legal considerations).

See Comment 12 for further discussion of effectiveness and the WS' decision-making process.

Comment 2. No criteria are given for the term “practical” in the statement that the current program considers recommending or using non-lethal methods when practical. There is no way to determine if various non-lethal management methods are better choices or have even been used.

ADC Directive 2.101 states that it is program policy that “Preference is given to non-lethal methods when practical and effective.” Practicality is dependant upon a number of variables that may not be able to be predetermined. The definition of ‘practical’, as given by Merriam-Webster, 10th ed. (1999) is, “...Disposed to action as opposed to speculation or abstraction... designed to supplement theoretical training by experience.” Because wildlife and nature are dynamic, the term “practical” has application since many environmental variables cannot be speculated upon, or predetermined. Thus, there is not one specific formula that can be applied in every field situation to determine if non-lethal methods would be practical and effective.

Agency personnel must implement their actions based on their experience and professional judgement, evaluating the appropriateness of strategies and methods in the context of their availability (legal and administrative) and suitability based on biological, economic and social considerations. All known variables are determined prior to field application, and these are developed into a basic management plan. Since not all variables can be predicted, some flexibility must remain for field adjustments. After the management strategy has been implemented, monitoring is conducted and evaluation continues to assess the effectiveness of the strategy. If the strategy is effective, the need for management is ended in that particular case, records are kept and reported to the appropriate wildlife management agencies. This proposal would implement safe and practical methods for the prevention and control of damage caused by migratory birds, based on local problem analysis, environmental and social factors, and the informed judgement of trained personnel.

The Management Information System (MIS) is used to record WS' Technical Assistance and Direct Control activities (Section 2.1). Between FY 1996 - 2000, WS made 348 recommendations for the use of 38 different methods for the management of damage inflicted by: California gulls, glaucous-winged gulls, herring gulls, ring-billed gulls, mallards, dabbling ducks, diving ducks, double-crested cormorants, red-tailed hawks, house finches, great-blue herons, northern flickers, and American robins (USDA MIS 1995-2000). A total of 274 instances of non-lethal and 74 instances of lethal methods were recommended during that time-period, which resulted in a 1:4 ratio of lethal to non-lethal methods recommended to the public. The methods recommended most often were: pyrotechnics (68), effigies (39), propane exploders (34), shooting (32), harassment/shoot (27), overhead wire grids (20), various barrier exclusion devices (15), mylar tape (13), netting (10), and mylar flags (9). Cooperator employed methods are those methods that have already been used by the resource owner to reduce damage prior to requesting direct assistance from WS. Of the 45 instances reported, 37 involved non-lethal methods. The most popular methods used were: pyrotechnics (12), propane exploders (7), harassment/shoot (6), various electric harassment devices (4), mylar flags (3), and vehicle harassment (3). The ratio of lethal to non-lethal cooperator employed methods resulted in a 1:5 ratio.

See also response to comment number 12 which gives site specific examples of how decisions are made in the field.

Comment 3. The Decision Model used in the EA is not quantitative.

Decision-making steps that WS personnel take are fundamentally the same as those for other professionals, and the model necessarily oversimplifies complex thought processes (USDA 1997, revised). Quantitative analysis is used when quantifiable data are available, but many issues are qualitative by nature, and therefore, the Decision Model is not quantitative. Both quantitative and qualitative data are considered in the NEPA process and in the Decision Model (Appendix 3; USDA 1997, revised). See response to comment number 12 for more discussion of the Decision Model.

Comment 4. The EA does not include comparison of the efficacy or cost/benefits for any methods for each target species. An EIS is required to show the cost/benefits of the program.

An EIS is not required unless there may be a significant impact on the environment. This EA has resulted in a Finding of No significant Impact, through a NEPA process that went beyond minimum requirements to comply with CEQ and APHIS agency implementing regulations. CEQ regulations (40 CFR 1502.23) do not require a formal, monetized cost-benefit analysis, especially when qualitative issues are involved (such as human lives and safety). Additionally, a cost-benefit analysis is used to help compare alternatives, and is not necessary nor applicable in this analysis. The approach taken in the USDA-APHIS-ADC Programmatic EIS (1997, revised), to which the EA is tiered, (see the Economic Impact Assessment in Chapter 4 of the EIS) weighs the economic merits and drawbacks of five program alternatives.

The major conclusions of that analysis are worth summarizing here. With regard to the Current Program Alternative in the USDA-APHIS-ADC Programmatic EIS (1997, revised) (similar to the current program in this EA), there is evidence that the use of control methods can be effective, even though the precise monetary value of avoided losses cannot be rigorously established. Based on the analysis' made in the USDA-APHIS-ADC Programmatic EIS (1997, revised), the No Lethal Control by WS Alternative in the EA would reduce some program costs as clients went out of business since many types of damage could not be addressed, however the residual efforts by WS employees would cost more to implement. Costs to clients would increase as they would have to take over their own control activities. The costs and benefits of this alternative would eventually be the same as the No Management of Migratory Bird Damage by WS Alternative as the program is eliminated. The Exhaust all Non-lethal Methods Before Lethal Methods are Considered Alternative would be more costly to both the program and to clients and this could lead to less productivity and efficiency on the part of the program and loss of businesses to WS' cooperators. Based on this analysis of the alternatives analyzed in this EA, which is tiered to the USDA-APHIS-ADC Programmatic EIS (1997, revised), the Current Program Alternative (Proposed Action) appears to offer a favorable ratio of benefits to costs, even though these costs and benefits cannot be rigorously quantified.

As stated in Section 1.2 of the EA and Chapter 1 of the USDA-APHIS-ADC Programmatic EIS (1997, revised), the primary justification of the WS program is to resolve conflicts between humans and wildlife. This justification is both different and broader than 'reducing economic losses'. The WS program addresses a broad range of conflicts between humans and wildlife. Such conflicts will increase in the future, and the need for professional management of such conflicts will also increase.

Comment 5. There is no reason to believe that non-lethal methods would be used preferentially in every case.

In the discussion of Alternative 4 (Section 2.4 and 3.4) the EA states that non-lethal methods are an important dimension of IWDM, gives them first consideration in the formulation of each control strategy, and recommends or uses them when practical, before recommending or using lethal methods. In addition, ADC Directive 2.101 requires the use of non-lethal methods when practical and effective. WS field personnel use the IWDM approach and the WS Decision Model to develop a control strategy on a case-by-case basis. WS concurs that non-lethal methods may not be used preferentially in every case because every

situation is unique, and must take into account environmental, legal and administrative considerations, among many others. Non-lethal methods are inconspicuously integrated into almost every lethal control action. Although a lethal method such as shooting may be used over non-lethal (pyrotechnics), a non-lethal method (a loud noise) is being generated simultaneously with the lethal control action, thereby hazing other birds within the vicinity of the control action. See Comment 12 for an example of the decision-making process used under the WS Decision Model.

Comment 6. In Table 2, there is no discussion of how numbers of birds hazed are determined. Were the same gulls hazed again and again?

WS attempts to record every bird hazed. For example, if a gull were to return to a site four times and was hazed in each instance, WS would record four gulls hazed.

Comment 7. What was the percentage of birds of each species killed and hazed out of the total population encountered?

The total population encountered (FY 1996-2000) is depicted through pie charts in Figures 1A, 1B, 1C, and 1D and in the text of Section 3.1.3. For example, the average number of California gulls hazed and killed per year over the last 5 years was 3,962 and 848, respectively (EA, pg 14). On average, the total population encountered per year over the last 5 years would be the summation of the birds hazed and killed, which comes to 4,810 California gulls. The total population encountered is likely to be overestimated because gulls are repeatedly hazed (See Comment 6).

It is the responsibility of the USFWS and WDFW to estimate wildlife populations, and comment 9 provides further discussion on WS' impact on bird populations in Washington.

Comment 8. The numbers given in Table 2 do not correspond to the Depredation Control reports provided to the USFWS for the period 1996-2000.

WS reports on a fiscal year which goes from September 1, through October 31. The USFWS reports on a calendar year, and therefore the USFWS Depredation Permit will contain data from two different fiscal years for WS. Secondly, Table 2 is not a representation of the lethal removal, or take, of migratory birds on projects which lie outside the scope of this EA. Those impacts are discussed under Cumulative Impacts (Section 3.6). For example, when the cooperator is another federal agency, NEPA becomes the responsibility of the cooperator, and WS includes the take of those migratory birds in the Cumulative Impacts section (3.6), rather than Table 2.

The writer of comment 8 also discusses the absence of red-winged blackbirds, European starlings, and rock doves from the analysis. A FONSI has been written for these species (Section 1.4). The Final EA and FONSI and Decision for Bird Damage Management (As associated with 'depredating' nonnative (invasive) birds, feral domestic waterfowl, nonmigratory birds, and those migratory birds as provided for in 50 CFR Regulations in the State of Washington) is available to the public upon request.

Comment 9. The population trend analyses presented in Figures 2a-f are useless for determining the effect or the effectiveness of the Current Program.

WS would agree that these data do not determine the effectiveness of the program. Figures 2a-f are used to show population trends (page 13). When scientifically sound population estimates are lacking, it is common practice for management agencies to use population trend analyses to determine if species populations are 'increasing', 'stable', or 'decreasing'. These data provide an index with which to compare 'take' data to

assist with a determination of the likelihood of whether or not the program is having an effect on populations. In addition, the expertise of the Federal and state migratory bird management agencies are used to draw conclusions on the effects on populations.

The Current Program is not likely, nor designed, to impact migratory bird populations on a state-wide basis. However, some local flocks have been reduced or removed on a site-by-site basis. Most of WS' lethal efforts are directed toward gulls (Table 2). It is the goal of WS to manage wildlife-caused damage, rather than to control or manage wildlife populations, and there has been no discernable impact on population levels (USFWS₃, pers. comm.). For those species where the typical level of harassment and lethal take is low (Table 2), the impacts of these actions at the local, regional, or national population scale are insignificant (USFWS₂, pers. comm.). The USFWS (pers. comm. ₃) concurs that the level of take of migratory birds for the purpose of site-specific damage control, as described under the Current Program Alternative (Proposed Action), is not likely to affect migratory bird populations at the regional or national scale.

Comment 10. The EA does not contain sufficient information to indicate whether WS will confine its efforts to the species mentioned in the EA, or will expand to other species as it deems necessary.

This EA evaluates ways by which the responsibility to reduce human/wildlife conflicts can be carried out to resolve conflicts with migratory birds that include, but are not necessarily limited to the species listed on page 2 of the EA. The species listed in the EA are the most likely species to be targeted based on historic records (USDA 1995-2000). Generally, species in highest abundance are the ones causing damage, by virtue of their numbers. It is unlikely, but not impossible to expect that there may be other species that could create damage at such a level that WS would be called. If any type of action were needed to address damage caused by different groups of species outside to scope of the analysis, a new analysis would be developed in a revision (i.e. categorical exclusion or amended EA). WS advises appropriate State and Federal wildlife management agencies of WS' actions to assure local, state and regional knowledge of wildlife population trends and status.

The wording, 'migratory birds that include, but are not necessarily limited to...' is used to allow WS to address immediate threats to agriculture, property, natural resources and human health and safety caused by a migratory bird species not discussed in this document, but within the scope of the analysis. If this were to occur, an analysis of that species' status and WS' impact on the target species would be included in the Annual Review of the EA. Individual actions are Categorically Excluded because of the history and low likelihood of management actions. Any substantive changes to the EA will require WS to inform the public of the availability of an amended NEPA document and a 30-day public comment period.

Comment 11. This EA does not satisfy the site-specificity requirement of the NEPA.

The underlying intent for preparing any EA, as defined under CEQ NEPA regulations, is to determine if a proposed action might have a significant impact. This EA process has been issue driven, meaning issues that were raised during the interdisciplinary process and through public involvement that were substantive, were used to drive the analysis and determine the significance of the environmental impacts of the proposal and its alternatives. Therefore, the level of site-specificity must be appropriate to the issues listed. The substantive issues analyzed were effectiveness of control measures, impacts on non-target species, impact on the target population, humaneness of methods, and aesthetics of migratory birds. WS has determined that its analysis is adequate, because further site specific information would not change the analysis, add to the public's understanding of the proposal, or provide additional useful or relevant information to the Decision-maker (Eccleston 1995).

The EA has resulted in a Finding of No Significant Impact, after WS considered both the context and intensity of the potential impacts to determine significance (Section 1508.27):

The context in which migratory bird damage management impacts could occur are largely limited to the resources (people, property, non-target species, natural resources, agriculture and the migratory bird population) within the State of Washington. However, certain members of society at large may be concerned with some issues and impacts within the state (for example: humaneness, migratory bird population viability, air traffic safety, and impacts on threatened and endangered species). Because less tangible issues such as social values for wildlife are more widespread, WS considers them in the broader context. However, the more tangible effects are on properties and people who live in the State of Washington.

In determining the intensity (the severity) of impacts, WS evaluated the proposal against the ten criteria established in Section 1508.27 (see the FONSI section for a complete list of items that could trigger significance). WS found that the degree to which the proposal could trigger the criteria was low to nonexistent. For example, "...The degree to which the action may adversely affect an endangered or threatened species or its habitat..." and "...whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment" was low to nonexistent.

The analysis in this EA was driven by the issues raised during the NEPA process, and the impacts of the proposal were determined to be not significant after examination in light of both the context and intensity of the impacts, as defined by CEQ.

Comment 12. The EA does not provide an adequate description of the proposed action. The EA is vague about the methods used to evaluate and assess damage, the specific recommendations that typically are made in a damage situation, how a damage control program will typically be applied, what the costs of various programs might be, and what the duration of remediation of a problem using different approaches might be. The EA should provide examples of past efforts that span the range of species, conflicts and responses.

WS does not believe the proposed action can be further defined because of the countless scenarios that could occur. Pages 12 through 24 in the EA discuss WS' Proposed Action.

WS personnel use the WS Decision Model as a site specific tool to develop the most appropriate strategy at each location. The WS Decision Model is an analytical thought process used by WS personnel for evaluating and responding to wildlife damage management requests. When a request for assistance is received and after consultation with the requester, WS personnel evaluate the appropriateness of strategies, and methods are evaluated in the context of their availability (legal and administrative) and suitability (based on biological, economic and social considerations). Following this evaluation, the methods deemed to be practical are formed into a damage management strategy for the situation. For example, on most properties, wildlife damage may occur whenever food, water and habitat for the damaging species are present. WS personnel and the property owner/manager monitor and reevaluate the situation to devise the most effective solution. If one method or combination of methods fails to stop damage, a different strategy or a modified strategy may be implemented. If the strategy is effective, the need for damage management is ended but monitoring continues. In terms of the WS Decision Model, most damage management efforts consist of a continuous feedback loop between receiving the request, implementing a strategy and monitoring the results.

The following scenario is provided to show how each potential threat is unique and cannot be predetermined due to the variable nature of the natural environment.

Example of the WS Decision Model Process:

Step 1. Receive Request for Assistance

WS receives a request for assistance from an airport manager and the FAA, reporting that a glaucous-winged gull was involved in a bird-strike and many gulls have been seen crossing the runways on a regular basis.

Step 2. Assess Problem

A WS Specialist considered the following types of questions during the initial evaluation:

- Is the problem within the purview of WS?
- Where exactly did the damage occur?
- Is a cooperative agreement in effect for WS to provide control assistance for this type of problem in this area?
- Does WS have expert personnel available to visit the damage site to confirm the damage, formulate control strategy, and carry out the action?
- Who can provide more information? Where and when can WS personnel contact them?
- What is the history of gull activity at the airport?
- What risks or damages have been identified with gull usage of the airport?

The results of the assessment follow:

a) **Type of damage** - The pilot of an air carrier reported striking three birds on a landing approach to a runway. No injuries occurred, and only minor damage to the air carrier was reported by the pilot. An accident report was filed with the FAA Regional Office, and an ecological study was scheduled to begin, as required under FAR 139.337. Two other near-miss air strikes with birds had been reported by the airport manager.

b) **Location** - The bird-strike occurred on a landing approach at an altitude of 50 feet. The other near-misses occurred at mid-field during two separate take-offs, both in the morning. Gulls have been reported crossing the runways at similar locations and altitudes.

c) **Site Visit** - A survey by a WS Specialist of the airport and surrounding area revealed that gulls used the airspace around the airport to move between roosting and feeding areas in the morning and evening. Air traffic safety was the primary concern. The airport was a major hub for international and domestic flights and supported over 250,000 aircraft operations per year.

d) **Responsible Species** - The roosting colony consisted of 1,500 glaucous-winged gulls. On average, 10 gulls would be crossing into the Aircraft-Operations-Area (AOA) every three minutes during the peak hours of movement, just before sunrise and one hour before sunset.

e) **Previous Control** - The airport had netted water detention ponds and applied porcupine wire to light poles and ledges used for loafing and roosting. Although gulls had occasionally frequented the airfield, their numbers and frequency had been low.

f) **Assessment** - This problem was within the purview of WS. WS agreed to provide assistance.

Step 3. Evaluate Wildlife Damage Control Methods

The WS Specialist evaluated the potential damage control methods (see list below) to determine which methods were applicable. The basis for selection or rejection of the control methods and the results of the evaluation follow.

<u>Potential Damage Control Method</u>	<u>Basis for Selection or Rejection</u>
<u>Resource Management</u>	
Modification of Human Behavior: Alter aircraft flight patterns Discourage wildlife feeding	Not practical; all possible flight patterns were affected by gulls crossing the runway. Applicable.
<u>Physical Exclusion</u>	
Netting, porcupine wire, wire grids	Implemented; detention ponds, perching areas, and garbage containers were bird-proofed.
<u>Wildlife Management</u>	
<u>Habitat Modification:</u>	
Eliminate or modify vegetation	Applicable; further studies into seasonal diet selection (invertebrates, rodents).
Eliminate standing water	Ongoing; physical exclusion maintained or upgraded annually.
Roost thinning or removal	Not applicable.
<u>Frightening Devices:</u>	
Electronic distress sounds	Applicable, if used in combination with depredation permit, habitat modification and physical exclusion.
Propane exploders	Do.
Pyrotechnics	Do.
Water spray devices	Not practical; may attract gulls.
Harassment	Applicable, only after gulls have associated the harassment method with danger.
Other scaring devices -	Applicable, if moved often and used in combination with depredation permit and physical exclusion.
Effigies	Not practical because of Foreign Object Debris (FOD) concerns.
Eye-spot balloon	Not practical because of FOD concerns.
Mylar tape	Not practical; not allowed by FAA and gulls do not use airfield at night.
Lights	Applicable if airport habitat is used for feeding.
<u>Chemical Repellents:</u>	
<u>Kill or Relocation Methods:</u>	
Cage traps	Not practical; gulls are rarely decoyed into cage traps.
Shooting	Applicable if combined with scare tactics, habitat modification and physical exclusion.
Egg and nest removal	Applicable, if occurring on site and used in combination with depredation permit and exclusion.
	Not applicable.
<u>Chemical Toxicants:</u>	

a) Legal, Administrative

- (1) Lethal Methods - Glaucous-winged gulls are protected under the Migratory Bird Treaty Act (MBTA). USFWS permits are required to take this species and damage their eggs and nests. In this scenario it was determined by FAA officials and the airport manager that the gulls posed a human safety hazard.
- (2) Frightening Devices - City ordinance prohibited the use of pyrotechnics within the city limits, and special approval from city officials would have to be obtained.

b) Environmental Considerations

- (1) Biological - The safety concern was not seasonal. A large urbanized population of gulls had been steadily increasing over the last decade. The number of gulls crossing

the airfield was likely continue to grow in number and frequency unless dispersed. No Threatened or Endangered (T&E) species were observed in the area, and no known T&E species nests had been recorded by State or Federal wildlife management agencies. If such species had been found at or near the airport, consultation with USFWS would begin.

- (2) Sociocultural - The bird-strike had received little media attention and most of the public was unaware of the threats that birds and other wildlife posed to human health and safety. The airport Public Relations Officer had given an interview with local networks to educate those interested in wildlife issues at airports. Further cooperation and education between the airport and the surrounding communities was proposed.
- (3) Economic - The most serious economic consideration was damages that would be incurred should there be an air strike with a bird(s), which could cause loss of life or injuries to aircraft passengers. Lawsuits resulting from such an accident could cost the airport and the air carrier millions of dollars. Direct costs of damage to airplanes resulting from air strikes must also be considered. Several economic side effects could also result if the problem persisted and carriers were forced to reroute their flights to other airports.
- (4) Physical - A perimeter road within the AOA made it possible to set-up and move equipment frequently and efficiently. This also allowed airport personnel to use scare tactics while patrolling or fulfilling other duties. A Wildlife Hazard Management Plan (WHMP) would set a time-line for sampling and monitoring wildlife habitat and movement areas.

In order to obtain long-term success in changing the behavior of gulls crossing the runways, it would be necessary to implement an integrated approach that incorporated the safe use of lethal and non-lethal control.

c) **Applicable Methods**

Based on the evaluation, the following methods were considered as practical control methods: habitat modification; frightening devices, including electronic distress sounds, propane exploders, pyrotechnics, and effigies; chemical repellents; and lethal removal, including shooting, and egg and nest removal.

Step 4. Formulate Control Strategy

The WS Specialist and the airport manager met to develop a control strategy for the damage problem. The control strategy was formulated as a result of the Step 3 evaluation and it was determined that the problem needed to be resolved as soon as possible to prevent further chances of air strikes, resulting in possible fatalities. Furthermore, the WHMP would identify wildlife attractants and additional species of birds and mammals that may be of concern to airport operations based on that species' abundance, size, and overall use of the AOA.

It was decided that the best control strategy would be to immediately remove glaucous-winged gulls that entered the AOA. Frightening devices would not be implemented at first for two reasons: (1) the first gulls hazed may not realize they are being hazed because they are not conditioned, and (2) the gulls that are not immediately removed associate the loud noise with physical harm and leave the area. The combined use of frightening devices and shooting would be determined based upon gull behavior. The continued integration of physical exclusion (netting, wire grids, porcupine wire) and habitat modification for preventing the use of the airport environment by gulls and other wildlife would be followed according to the findings of the WHMP, mandated by the FAA. The airport manager and WS would acquire the necessary depredation permits from the USFWS to implement the desired control strategy.

Step 5. Provide Assistance

WS' role was that of providing damage assessment, technical assistance, monitoring, and to loan frightening equipment. The WS representative communicated with concerned parties to provide details for implementing control techniques and bird identification. An operational program was conducted by airport employees, contractors, and WS' personnel.

An Agreement for Control on Non-Private Property was completed. The agreement authorized control activities on the property and described the control methods to be used. WS also contracted with the airport to conduct an ecological study to identify wildlife hazards and bird flight corridors on the airport under a cooperative funding agreement. Direct control services provided by WS personnel were (1) aid in the development and implementation of a WHMP, (2) hazing and harassment of gulls using the AOA, and (3) shooting of persistent gulls entering the AOA.

Step 6. Monitor and Evaluate Results of Control Actions

WS and airport personnel lethally removed 200 glaucous-winged gulls and hazed nearly 62,000 individual gulls during the first six months. For every gull that was lethally removed, 310 were hazed. Because 1,500 glaucous-winged gulls were counted during the initial visit to the roost, it was suspected that the same birds were being hazed on a daily basis. WS and airport personnel continually monitored gull activity around the airfield and at the roost to verify implementation of the selected control method, control method effectiveness, and need for additional WS assistance.

Step 7. End of Project

The number and frequency of gulls attempting to use the AOA had decreased substantially after twelve months of control operations. The problem of gulls crossing the AOA had been greatly reduced and no new gull-strikes or near-misses had occurred. Because gulls will continue to present a health and safety concern when they enter the AOA, and other wildlife species are likely to pose similar threats, this project may be expanded. A project is considered completed for WS whenever program personnel are no longer directly involved in control activity for that specific problem. This type of project has no well-defined end point.

See Appendix N in the USDA-APHIS-ADC Programmatic EIS (1997, revised) for more examples of the WS Decision Model.

Comment 13. WS has confirmed none of the reported damage, accepting on faith the producers' estimates of their financial losses. If damage is not even reported to the program, much less confirmed, WS cannot use its suspicion that it occurred to justify the action it proposes.

The wording used in the EA to differentiate between 'Reported' and 'Verified' dollar damage data was insufficient, and in one case (page 5), incorrect. On page 5, paragraph 4 begins with, "Total migratory bird damage *reported* to WS in WA for fiscal year....", and now reads, "Total migratory bird damage *reported* and *verified* by WS in WA for fiscal year....". The Need for Action does not only take into account damages reported to WS, but damages verified by trained WS personnel as well.

On page 6 under the subsection, Accumulation of Droppings, the wording, "Between FY 1996-2000, WS received reports of droppings...", now reads, "Between FY 1996-2000, WS recorded droppings..."

On page 6 under the subsection, Crop Damage, the wording, "Losses reported by farmers to WS in FY 1999 totaled....", now reads, "Losses reported by farmers and verified by WS in FY 1999 totaled...." Also on page 6 under the same subsection, the sentence, "Between FY 1996-2000, WS recorded a total of...", is relating to both verified and reported damage information.

The word, 'recorded', is used throughout the document to relate both verified and reported information recorded on WS' MIS database.

On page 7 under the subsection, Damage to Property, the sentence beginning, "In FY 1996-2000, WS received damage complaints of ...", now reads, "In FY 1996-2000, WS recorded (verified and reported) damage complaints of..." On page 8 under the same subsection, the sentence beginning, "WS has received reports from solid waste...", now reads, "WS has recorded (verified and reported) dollar damage from solid waste..."

The edited sentences mentioned above have also been changed in the body of the EA.

WS used program records to compile damage estimates. When people contact WS for assistance they frequently provide estimated costs of damage. WS does not have the resources, responsibility, or authority to verify all damage reports. Although not comprehensive, the summary of these records represented the best information available, even though it most likely underestimated the total damage caused by migratory birds. Cooperators are not compensated for losses, therefore they have nothing to gain by over reporting damages. Damage reports were received from individuals; businesses; State, county and municipal governments; Federal agencies; and others.

WS has the legal mandate to respond to all requests for wildlife damage management regardless of extent of loss, and it is program policy to assist each requester to minimize losses. In order to fulfill WS' directives (Section 1.5), wildlife damage management is conducted to prevent or minimize damage and protect resources while complying with strict measures to ensure public safety as well as the protection of domestic animals, and non-target and T&E species. Therefore, wildlife damage management is not based on punishing offending animals but rather as a means of reducing damage, predicting future damage, and conducted using the WS' Decision Model described in the USDA-APHIS-ADC Programmatic EIS (1997, revised). The imminent threat of damage or loss of resources is often sufficient for individual actions to be initiated. In Chapter 2 of the APHIS-USDA-ADC Programmatic EIS (1997, revised), the WS Decision Model for selecting strategies for wildlife damage management identifies several factors, including anticipation of potential impacts, that demonstrate the scientific and professional basis of WS' activities.

For example, in the Southern Utah Wilderness Alliance, et al. vs. Hugh Thompson, Forest Supervisor for the Dixie National Forest, et al., the United States District Court of Utah denied plaintiffs' motion for preliminary injunction. In part, the court found that a forest supervisor need only show that damage from predators is threatened to establish a need for wildlife damage management (U.S. District Court of Utah 1993).

Comment 14. Support Alternative 2.

Thank you for your comment. All aspects of Alternative 2 relating to non-lethal direct control and technical assistance are included in the Proposed Action (Alternative 1), and they are in fact given first consideration in developing management strategies to manage damage by migratory birds. See an example of the decision-making process used under the WS Decision Model in comment 12.

Comment 15. WS should use humane and progressive methods... do not want tax dollars used to kill wild birds.

The WS program attempts to minimize conflicts between humans and wildlife, and WS seeks to carry out its authority based on biological research and knowledge. Control of wildlife populations or removal of individual animals is a scientifically recognized component of wildlife management, as are preservation and the maintenance of populations USDA-APHIS-ADC Programmatic EIS (1997, revised). WS' practices are

based on scientific knowledge of wildlife populations and habitats. For example, the National Wildlife Research Center conducts research regarding the behavior of predators, the effectiveness of wildlife damage control methods, and many other topics related to the control of wildlife damage. This research is one basis for WS' approaches to the control of wildlife damage.

Direct control measures, which also include non-lethal methods, are provided by WS on a cost-reimbursable basis (Section 2.1 and 3.1.1). Resource owners experiencing wildlife damage on private property must pay out-of-pocket for direct control services and do not receive tax dollars to offset losses.

Tax dollars appropriated to the program are congressionally designated to be spent on wildlife damage control activities as broadly identified in the Animal Damage Control Act of 1931 and the Rural Development, Agriculture, and Related Agencies Appropriations Act of 1988. As such, these funds are used to protect agriculture, personal property, and natural resources (including threatened and endangered species) from wildlife damage as well as to safeguard public health and safety. These funds may be spent on private or public lands in accordance with national, state, or local laws to conduct wildlife damage control activities, and based upon requests for services.

Tax dollars spent on the WS program have been appropriated by Congress based on its decision to serve the public interest by avoiding damage from wildlife. These expenditures are not only for the good of agricultural producers but for the health and welfare of the general public and other urban and industrial concerns. In addition, to the extent that WS' control methods eliminate predators that prey on other fish or wildlife, such as gull depredation of waterfowl nests, WS' activities contribute to the protection of wildlife valued for recreational purposes. Regarding concerns about spending tax dollars on the use of lethal control methods, WS will continue to devote funds to research to improve control methods, both lethal and non-lethal, and will encourage these techniques through technical assistance activities.

Comment 16. Why were tax dollars spent on killing two robins?

Table 2 in the EA correctly states that two robins were killed in FY 1998, but the data shown for FY 2000 are incorrect. In FY 2000, a total of 5 American robins were killed and 617 hazed. WS has edited Table 2 accordingly. The text on page 20, discussing WS' impact on American robins, correctly stated the number of robins hazed, killed, and freed.

The seven American robins were lethally removed to reinforce the use of non-lethal methods and/or to remove persistent birds from damaging property or agriculture that would not respond to non-lethal methods. See comment number 2 and 5 which provide further discussion.

Comment 17. (I) oppose the management of migratory birds.

The comment implies that people should not interfere with nature. Natural systems are in a state of dynamic equilibrium. Balance is not static. Some species are increasing in numbers, while others are decreasing. Such changes are constantly occurring. Human populations are an integral component of this balance. Humans impact wildlife through activities such as crop and livestock production, urban development, and recreation. Similarly, wildlife activities affect human activities. The presence of humans and their activities can impose an element of management simply because of competition for resources and because of the changes humans cause in the landscape. Sound management practices take into account the dynamic state of the balance of nature, the often diverse interests of humans, wildlife needs, and the conflicts that sometimes result. Human influences on all ecosystems are present despite WS' activities.

WS does not manage migratory birds. The Current Program is not likely, nor designed, to impact migratory bird populations on a state-wide basis. However, some local flocks have been reduced or removed on a site-by-site basis. It is the goal of WS to manage wildlife caused damage, rather than to control or manage wildlife populations. See Appendix 1 and Section 1.5, Authority and Compliance.

Comment 18. Do you want to contribute to the declining diversity of species?

WS has no significant effect on bio-diversity (USDA 1997, revised). The Impact Analysis completed by WS indicates that WS is not causing the decline of target species. The USFWS concurs that the level of take of migratory birds for the purpose of site-specific damage control, as described under the Current Program Alternative (Proposed Action), is not likely to affect migratory bird populations at the regional or national scale (Section 3.1.3).

The species that cause the most damage also tend to be the most abundant. As glaucous-winged gull populations grow, they not only impact the human environment, but the natural environment as well. For example, Vermeer et. al. (1993) stated that, "Management of a potential problem species, the Glaucous-winged Gull, may become necessary, because the species represents a potential threat to the American Black Oystercatcher *Haematopus bachmani*, by usurping the latter's nesting habitat."

See Section 1.0 through 3.6 in the EA.

Comment 19. The EA should contain a more complete evaluation of Avitrol and DRC-1339 (disadvantageous aspects, as well as specific protocols addressing how they will be used).

Avitrol is not a chemical used by WS in the State of Washington. The commenter did not specify where they received the information. DRC-1339 Concentrate- Gulls (EPA#56228-17) is discussed in the EA on page 11 (Section 2.1), page 13 (Section 3.1.1), and page 28 (Section 3.6.1). Section 3.6.1, Cumulative Impact Potential from Chemical Methods, discusses the disadvantageous aspects of DRC-1339 Concentrate - Gulls, and references Appendix 5 (Pesticide Labels) which gives specific protocols on how they will be used.

Appendix P, in the USDA-APHIS-ADC Programmatic EIS (1997, revised), provides a Risk Assessment of DRC-1339 Concentrate - Gulls.

